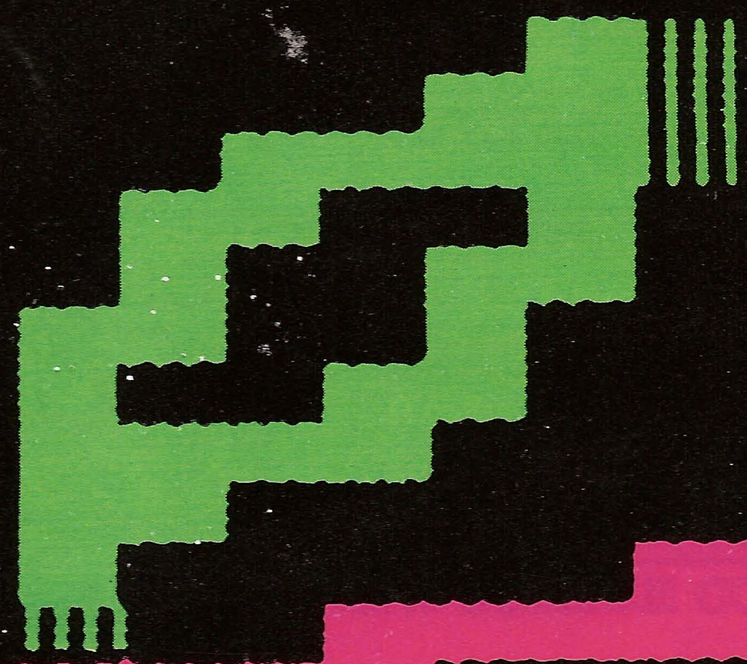
The Independent Magazine

Vol 1 No 6 July $3*

The Australian Apple Review

A Gareth Powell Publication



Apple ... Turtle in...
Incredible Jack Say it again, Sam
...er thoughts on the Apple IIc The n
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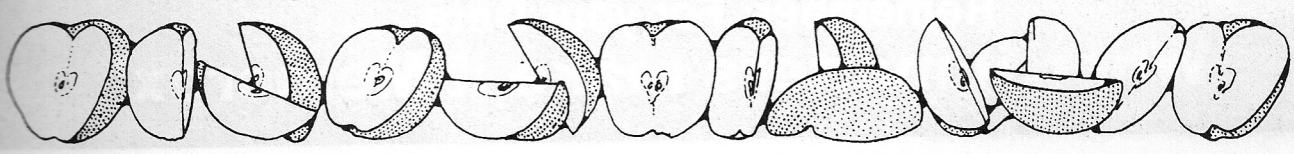
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The continued saga of Apple's legal battle worldwide is, in a strange way, a back-handed compliment to Apple. If the original machine was not so well designed, if the concept had not been so brilliant, then no one would have bothered for one moment to copy it. There are dozens of computers out there that no one has even thought of copying.

Will Apple win in the end? Without stepping on any judicial toes, I have to say that I think so. I am well informed on the situation as I spend so much time in Singapore, Hong Kong and Taiwan – territories where pirates abound.

What is happening is that the major manufacturers are giving up the unequal battle and are concentrating on other projects instead. (The fact that the other projects in the main consist of ripping off IBM, who are replying with unrivalled ferocity, is somewhat beside the point.) Apple's belated but thorough legal defence is beginning to show results, and although the latest Wombat development is an interesting one, I truthfully feel I have heard the death knell for imitation Apples being made by major manufacturers.

This does not mean for one moment that there will not be imitation Apples. There will, by the hundreds. But they will be made in half dozen lots to sell to tourists and enterprising smugglers rather than to the United States – where the US customs takes great pleasure and delight in smashing them with sledgehammers – or Australia, or Europe.

Everything in the garden would, one would have thought, been lovely. But there is no such thing as a Hong Kong or Taiwanese entrepreneur who is willing to see his business fail over a simple legal formality.

They have turned their sights on the biggest potential export market of them all. Already a consignment of MedFly has been bought "for evaluation" in the Peoples' Republic of China. And the man responsible for the sale is a previous distributor of Apples in Australia. In Beijing at the end of last month I saw several fake Apples which had plainly originated in Hong Kong. (For political reasons, Taiwanese machines would not be welcomed with open arms).

Effectively, there is no real copyright law in the People's Republic of China and it would be extremely easy for Hong Kong fake manufacturers to move across into the PRC and set up business with the government's blessing.

It will be a most interesting development. Nothing is ever boring on the Apple front.

Gareth Powell

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Apple News

Drunken Apples

The University of Sydney has a Psychopharmacology research unit at Rozelle Hospital. The tests there are run through an Apple computer.

According to John Crawford, a psychologist who has been designing tests of the units:

"With the tests developed for the microcomputer much more detailed information can be obtained, such as the times taken to obtain correct and incorrect answers for individual items and how performance varies from the beginning to the end of the test."

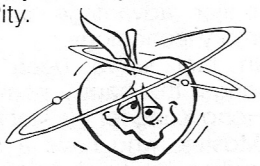
We would have thought one of the best ways of testing for drug and alcohol effects would have been to ask the patient to pronounce "Psychopharmacology". We can't even do that when we're sober.

The form of programming on the Apple appears to be extremely sophisticated. Said John Crawford:

"If a person is entering the wrong answers the Apple can automatically go back to easier questions; or on the other hand, skip to harder ones if the person is having no trouble answering."

The unit is currently using 5 Apple //es, the hardware of which has been slightly modified. And the machines are linked by modem to the university's mainframe so that a large quantity of data can be saved and analysed.

In a moment of noble self sacrifice we phoned them and said if they wanted volunteers experienced in drinking the cooling amber fluid, we would be only too willing to offer our services for nothing. They explained to us that they already had enough volunteers. Pity.



More law suits

There's been an announcement that Apple Computer has come to a resolution of the law suit filed against two companies in Texas who allegedly manufactured and distributed computers violating Apple's copyrights and patents.

The month before last the US district court in Southern Texas entered a consent decree and a final judgement against the companies in Apple's favour.

A consent decree in America means that the two companies being charged say "Sorry, guv, its a fair cop, I done it" or words to that effect.

Albert A. Eisenstat, Apple's Vice-President and General Counsel, who has been having a fairly busy time just recently, said:

"Enforcement of our intellectual property rights, including copyright patents, continues to be top Apple priority. Recent favourable court decisions have further encouraged us to continue pursuing legal methods of discouraging infringement of our copyrights."

It will be interesting to see how many further cases of a similar type appear in the United States in the near future.

Communication protocols

Some years ago we sat down and tried to link up an Apple II to a Wang 5. In this we had little or no help because there was no data available.

We found out that on the Wang communications disk there were an immense amount of protocols available. Far more than we had thought were humanly possible.

It took us six months and a major effort to get the two things to talk to each other. They now do it extremely well and we sometimes wonder what all the fuss was about.

Basically what the fuss was about was the fact that there are so many forms of communications available.

Let's look at some of the standards generally available. For example there are RS-366, RS-423A, RS-499, V.10, V.24, and God knows what else.

Those with an RS prefix (the letters, I promise you, do not stand for ratshit) come from the electronic industry's association in the United States and those with a V or X prefix come from CCITT which is responsible for our telephone system standards in Australia.

If you've ever wanted to know what CCITT stood for, it is Comite Consultatif Internationale Telefonique et Telgraphique. Quite so.

By and large the RS standards are the ones used in the US, which is why we find them on so many American computers, while the CCITT standards are in theory world-wide recommendations, but the United States continues to believe that it is not part of the wide world outside.

The standard that's used most widely on home computer applications is, of course, the RS-232C.

If you want its official title again it is "the interface between data terminal equipment and data circuit-terminating equipment employing serial-binary interface."

We always knew that. Just couldn't string the words together properly.

The RS-232C standard has four parts – the electrical signal characteristic, the interface-mechanical characteristic, a functional description of the signals which are involved and a list of the standard sub-sets of signals for a specific interface type.

If you don't understand that, don't worry. We trust all will become clear a little later on.

The RS-232 standard was never designed for direct connection of two computers, and if you use it in such an application you'll find that most of the electrical connections which are built-in are unnecessary.

RS-232 was originally designed for transmissions over distances with speeds of less than 19.2K bits per second. In fact 9,600 bits per second is the standard practical rate for most applications, and if you're using a modem with the telephone you're going to be stuck at either 300 bits per second or, if you're lucky, 1,200 bits per second.

On the RS-232 there are 21 different signal lines. Sometimes you only need to use three lines, for example when you're connecting it to a video display terminal.

The lines used here are signal ground, transmitted data and received data.

If you are using your RS-232 for a serial printer the received data line is taken out and the data set ready (DSR) is added.

This allows the printer to tell the computer that it cannot accept any more data because its buffer is full. As the standard buffer on most printers is something of the order of 2K, that happens fairly early on.

This data set ready line can actually be used for other purposes.

If you're using it with a modem to communicate with the outside world it can tell the modem that the computer is ready to accept data for transmission.

Another data control technique is to transmit in ASCII code, and for all of those who have wanted to know what ASCII stands for, it is the American Standard Code for Information Interchange.

In this case the received data line is connected instead of the data set ready, and the printer can transmit the appropriate code when it is full or ready to accept data.

As you can hopefully see, the first application works with a direct connection between the computer and the printer, while the second can be applied using telephone lines.

This means you could, if you wanted to, drive a printer at a remote location over the phone, assuming always that your computer can switch off its data flow fast enough to prevent an overflow at the printer.

Think of it like a tap with a long hose filling a bucket at the other end and you will get the rough idea.

With RS-232 in full duplex the lines used are protective ground, signal ground, transmitted data, received data, received line signal detector and, possibly, data set ready. The received line signal detector, which is often called the carrier detect, says, in effect, "I can hear a noise which says that somebody is trying to talk to me."

This noise is the carrier signal.

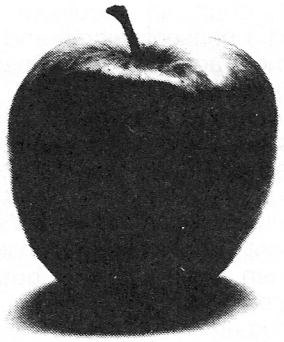
In a duplex stage there has to be a carrier signal going out from the modem and coming into the modem, otherwise the connection will be cut. In half-duplex modem applications two lines are added to the full-duplex lines and these are request to send and clear to send. If you can imagine two cars approaching each other on a single lane bridge you will have the idea.

"Request to send" comes from a car that flashes its headlights to ask can it go ahead and cross the bridge filling up the single lane.

The other car flashes its headlights with a "clear to send" to allow the on-coming car to come through safely.

These lines control the direction of the half-duplex separation.

The "request to send" is the computer's way of saying it is ready to start talking and the "clear to send" is a modem's way of saying it is ready to listen.



The "request to send" causes the modem at that end to turn on its transmitter and when it's finished sending its information it turns off the request line and the modem switches off its transmitter.

All this fascinating information we got from an article by Dave Crounse which appeared in "Bytelines" volume 2 number 3.

It was a fairly technical article and we have re-written it to make it easier to understand. Our greatest hope is that we have not stuffed up any of the essential information. No doubt some reader will quickly let us know if we have.

I hear a symphony

The latest improvement on Lotus 1-2-3 – currently the fastest selling program in the world – is Lotus Symphony which will be launched in Australia at the end of July at a price around the $1,000 mark. The President of Lotus Development said:

"We have taken special care to ensure that currency, time and date format, special characters and other fundamental features of the program are totally under user control. By doing all this, we intend to fully support national and multi-national uses of Symphony."

Symphony is what they call "an open-ended product" in that users are able to add in programs which are appropriate. As it stands it combines word processing, data base, communications, spreadsheets, graphics and window management.

And what does this momentous news have to do with Apple enthusiasts?

Further news is that Lotus 1-2-3 should be available on the 512K version of the Apple Macintosh which is due in Australia at the end of this year.

At least that's what the timetable says.



Copying Hong Kong

It's a case of art following reality. In Hong Kong for some time we have been using small batteries on the top of RAM chips in order to keep the memory intact when we switched off.

Now we see that Mostek Corporation have announced what they call a new solution to the non-volatility problem. Their idea is to stick a pair of miniature, long-lived lithium power cells in a packet onto the top of standard 24-pin ics.

They call their piggy-back battery package a lithium "top hat".

In the news story we read it said that this new development represents a major advantage in solid state memory technology.

In fact we've been doing this amongst the happy home hobbyists in Hong Kong for the last three years.

Mostek, who have a nice way of mangling the English language, refer to it as a "completely pre-engineered solution to a nasty problem".

If only they'd phoned some of the Apple enthusiasts in Hong Kong three years ago they'd never have had to invent the damned thing in the first place.

Wombat tries again

Michael Suss of Computer Edge rang to tell us that his company had written and copyrighted a new language for his Wombat computer which, he claimed, would "end Apple's monopoly".

He told us that when he was in the middle of the Apple court case (more on this later) he woke up very early one morning and decided to read all the court papers again. And a fairly long read it must have been. "I knew that Apple had lost their source code so all we had to do to prove that we had an original work was to have it produced in source code."

In fairness we found that difficult to believe.

Who had informed Mr Suss that Apple had "lost their source code"? He was not forthcoming on the point.

He also told us that he had then commissioned a team of programmers to produce an improved BASIC that would take advantage of the 65C02 (the CMOS version of the normal Central Processing Unit). This would enable Wombat to run all standard Apple programs and, at the same time, offer advanced facilities to programmers.

He said he had copyrighted this new source in Australia, Taiwan and the United States.

There is certainly such a registration in his name for the Wombat BASIC program – April 4, 1984 – and a further registration made on April 16, 1984 for a Disk Operating System and an Auto Boot program.

Mr Suss offered to send us one of his Wombats to test. We suggested that he consult with his legal advisors before he did this. Since then he has not contacted us.

A thought has occurred to us. Litigation is not cheap. Lawyers charge more than programmers. Who has to finance all this? At this stage of the game we are talking about very serious money indeed.

As an appeal has been lodged in the High Court in the matter Apple v Computer Edge and Michael Suss, we cannot comment on that because the matter is sub judice.

But we can comment on his new DOS and Auto Boot program.

Mr Suss, by his own admission, is a businessman rather than a programmer.

We talked to a programmer who



truly knows which end is up. His view is that "no man born of woman is going to be able to put together an Apple compatible Disk Operating System and Auto Boot that doesn't conflict with Apple's patents".

Why then, we asked, did Mr Suss sound so confident? Our expert programmer said it was possible that Mr Suss had not understood how much of the Apple system his programmers had had to use to achieve their ends.

No doubt this is not the last we will hear of this matter. Stay tuned for further reports.

Apple pounces on Cat

Meanwhile, over in Hong Kong, Apple Computer of the United States issued a writ against Video Technology Limited claiming copyright infringements on the Autostart ROM and Applesoft programs.

The latter programs were alleged to have been used on Video Technology's Emulator cartridge for its 8-bit Laser 3000 microcomputer. Video Technology say they are filing a defence in Hong Kong and "we have instructed our lawyers in Chicago to file a counter-claim against Apple in the United States".

And what, you may ask in some puzzlement, has all this got to do with us? A lot.

Video Technology produce the Laser 3000, marketed by Dick Smith Electronics in Australia as "The Cat", which has been both reviewed and advertised in this magazine.

It would be wrong to make any predictions – judges can be very huffy about that sort of thing – but if Apple win the Laser case in Hong Kong, then as sure as Jobs and Wozniak made little Apples we'll be seeing a similar suit in Australia.

Meanwhile, over in Taiwan the law suits continue on both the Apple and the IBM front, with the latest amazing news that four software pirates have been sent to jail. Heretofore, a fine of US$100 would have been considered a condign punishment.

Times they are indeed achangin'.

Macintosh programs

If the Macintosh is going to be a major force in personal computing and not just a university educational machine, it has to have a wedge, a bundle, a plethora of programs available. The issue before last we did a round-up of what had been promised. Now we are pleased to say that those promises are coming to fruition and the range of programs available for the Mac is not only wide but, in many cases, the state of the art. The following is a sample of what is now becoming available. (These are not yet available in Australia, but will be Real Soon Now.)

First of all Lotus 1-2-3 is now a definite starter. CRTplus is a program designed for banks to deliver information to their customers. Presumably the program comes with its own supply of red ink. Then there is a new database system called NPL Information Management System which gets around most of the complicated problems of database programming.

From Human Edge Software comes The Sales Edge, The Management Edge and The Negotiation Edge.

MicroSoft have added Word – their extremely powerful word processing program – to MultiPlan, thus underlining their dedication to the Macintosh which started when they supplied their immensely powerful MicroSoft Basic specially adapted to it. To go with it is Chart and File. They have a pretty way with imaginative titles at MicroSoft.

Software Publishing Corporation has released their PFS series for the Macintosh, and it should be in Australia Real Soon Now.

Infocom will let you play lots of games including the mind baffling Zork series and similar adventures of the imagination.

Blue Chip has released Millionaire, Tycoon and Baron. We await with interest further games in this area such as Destitute, Impoverished and Bankrupt, when we will be able to play with a good chance of pulling off the Trifecta.

In peripherals Davong have released a series of hard disk storages for the Macintosh, running from 5 megabytes right up to 32 megabytes. On the evidence in front of us this would appear to be an exercise in futility, because if you need hard disk storage with the Macintosh why don't you buy a Lisa

with it already built-in? It wonders us.

Over in the UK a series of programs for the Macintosh is already being prepared, including the famous Wizardry imagination game which, in its Apple II lifetime, carried off a scad of awards.

Apple joins pressure group

In a move that comes as no surprise to anyone, Apple has joined the Ad Hoc Electronics Tax group, an American group dedicated to getting tax cuts for high technology firms. They say they are paying 10 percent more taxes than comparable American firms in other industries. They want their current concessions on Research and Development extended and they want to write the cost of technical equipment against expenses instead of having to amortize it over five years.

Having read their last annual report and balance sheet with the keenest interest, our hearts go out to them in their travail. If things don't improve Apple may stop having one of the biggest cash buffers and lowest borrowings of any company in corporate America. And then where would we be?

Dealers get electrified

Apple are now putting in an electronic mail system for their dealers with what their press hand out refers to as a "high speed communications facility". 300 baud rate high speed? It is, it is true, faster than pigeon post and the postal service. But only marginally.

The system will work off Apple IIes using boards provided by NetComm, a splendid outfit in New South Wales run by amiable eccentrics who produce some of the best communication in the world.

The idea is that dealers can keep up to date with the rapidly changing world of Apple and can also use the system to demonstrate the advantages of modems to potential purchasers. They'll be able to use Midas to access The Source, Dow Jones and they will be able to use Austpac to access the Australian Beginning. At rates faster than 300 baud, we trust. Otherwise the customers may be underwhelmed. □

Logo• turtle into ape

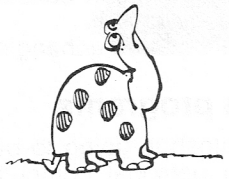
by Roger Braintree

Back in the sixties Bolt, Beranek and Newman in Boston were what might be termed a commercial think tank.They developed Logo with the idea that it would be suitable for children and other computer novices and yet at the same time would be a language for learning and problem-solving.

Logo was inextricably entangled with Lisp, a language which had been developed a number of years earlier for artificial intelligence research. This involvement was because the designers of Logo were in the main involved in the development of artificial intelligence. They saw Lisp as a suitable vehicle for an educational language.

By the beginning of the seventies Logo was being fairly widely used in the educational market. It was in the early seventies that Seymour Papert, one of the original development group, brought to Logo the idea of total graphics, which was first seen as a robot turtle and at a later stage as a figure on a television screen.





This was a major breakthrough. It required a quantum leap in the imagination to see a child programming a robot through a simple set of commands. By 1974 the philosophy of Logo had been stated at the university of Essex as:

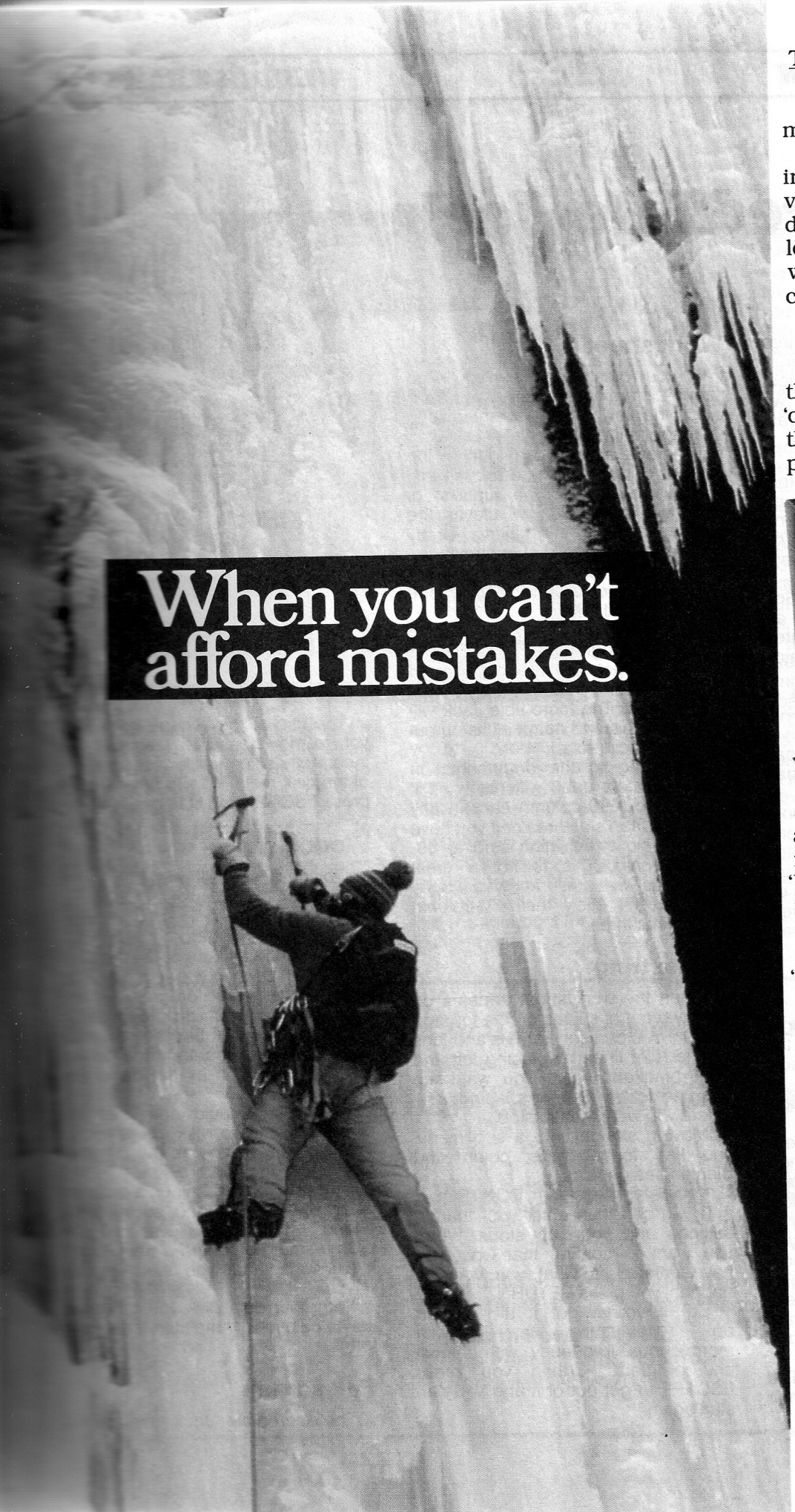
1. a program that did not require students to have extensive formula knowledge from some other programming system;
2. an obvious program trace which was the turtle trail to help debugging;
3. primitive commands which were simple to understand in terms of action within the problem.

It's obvious that Logo was not a language that followed within the pattern of previous languages. It had a philosophy and a style of its own.

At the Massachusetts Institute of Technology, Seymour Papert was developing a philosophy based on the idea that children could build their own intellectual structure without being taught, and that Logo could be used as a tool to allow the child to explore, plan and program projects. There's no doubt that it is an amazing educational tool, although there is some discussion as to how much help is needed from teachers.

Now Logo is widely available on most personal computers and at the user level it is currently becoming an established part of the educational scene. More amazing is the fact that Logo is breaking into the business world. Obviously the turtle has ceased to be a turtle so that businesspeople can accept the package. It's now called a pointing ape. There's no suggestion that Logo is going to take over from either Cobol or Fortran but it does appear to open up a lot of areas. Digital Research, who are backing the introduction of Logo for business, see the possibility of it being a replacement for BASIC in the business environment.

□



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There really is a difference in diskette brands.

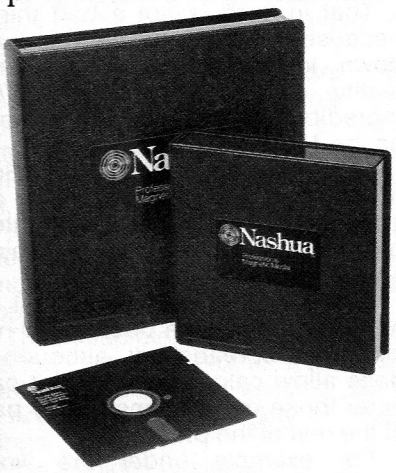
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The Incredible Jack



The Incredible Jack is three programs in one. It's a filer, a word processor and a calculator. Before we go any further, we must stress that each of the separate abilities of the Incredible Jack is limited.

That in itself is not a bad thing, because it means the price is kept down to something approaching reality, and it means that The Incredible Jack will run very happily on the 48K on an Apple II+ or //e.

In a sense we should call it "Son of Lotus 1-2-3" in that it is an integrated program, and integrated programs are the way in which software is heading.

However it is also important to note The Incredible Jack does not contain a spreadsheet, although it does allow calculations. And it can enter those calculations in any part of the rest of the program.

For example under the word processor you can create a form letter and within that form letter there can be a series of calculations.

As a result you will be able to do a complete set of quotes to different prospective customers at different prices using the same form letter.

Key card

The Incredible Jack is packed in a little square box that houses the program disk, the instruction manual and the key card.

This last item shows how all key strokes work on your computer to move the cursor around and access special functions. It is an extremely useful addition and it should be part of every program sold. It is almost impossible to keep in your memory all the instructions for the programs you use unless you have the memory bank of Harry Lorayne.

When you boot the Jack, it first tells you that it is verifying the program disk and then it displays "Press any key to continue".

Here the people who wrote The Incredible Jack have shown their intelligence.

Work sheet

If you press the key you'll go straight into a work sheet. If you don't press the key you get an interesting display of a title page.

Programs are so often spoilt by the amount of time they take assembling and displaying a large amount of graphics to show how clever the programmer is at making pretty pictures come up on your screen.

With The Incredible Jack it's possible to get around that by one swift press of the key.

We recommend this feature to every other programmer.

If you've got your 80-column card in slot three or if you have the //e's 80-column card The Incredible Jack will recognise this and adapt all its output to those 80 columns.

According to the documentation The Incredible Jack will not work if you put your 80-column card in any slot other than slot three or if you have a card in slot three which is not an 80-column card. This is not a great bother as we don't know anybody who doesn't stick their 80-column card in slot three.

Tab setting

When the work sheet appears on the screen it has lines on the top and bottom. You can set margins and tabs on the ruler lines by placing left and right brackets where you want the margins to be and by placing a + where you want the tab stop.

Moving straight into a sub menu, you find format, tabs, colon and blanking as choices.

You select tabs with CONTROL T and you can then enter your margin settings and your tab stops. When you want to confirm that what you have entered is what you want to happen, you press RETURN.

But if you've got it all messed up – something we do with monotonous frequency with almost any program – then you press ESCAPE to get out of it and you can start again.

The use of the escape key allows you to move between menus. If you incorrectly select a file menu instead of the disk menu, all you have to do is press ESCAPE and start again.

Work disk

Obviously you will want to save the information that you use.

What you need is a work disk. That's pretty easy to do.

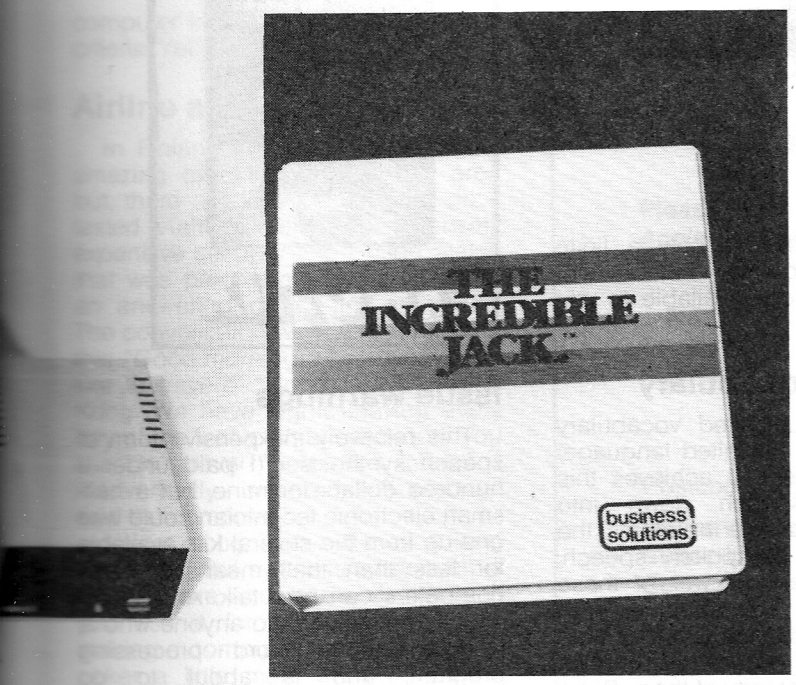
Go into the disk menu by pressing CONTROL D when you've got a blank disk in drive 2. The program will ask you if you want your disk formatted. If you say "Y" for yes the program asks you for a disk name and then formats the disk, calling it by the name you supply.

(Here you should note that you need at least two disk drives to run The Incredible Jack as the program has to stay in drive 1 all the time. We think that is a drawback on a program which is so neat and so relatively cheap. And we believe that the programmer could find a way around it. But as it stands you need two disk drives.)

With your data disk you can enter the calculations, templates, letters and forms.

Full screen

The Incredible Jack uses a full



screen for naming files in different columns, so that for example we can put letters in column one, forms in column two and a calculation work sheet in column three.

You automatically default back to the disk menu which displays various options.

If you select the load option, a prompt appears asking you to put the cursor over an existing file name or type in a new file name.

If you're starting with a new disk you're obviously going to have to enter a new file name. Once you've done that you are back onto your work sheet where you can enter data.

When you've finished working on your information, you hit CONTROL S and the text will be saved under the file name you selected earlier. If you like you can print the file out or go on to a new one.

The big plus about this program is that it is extremely simple to use and the tutorial is one of the best we've ever seen. If you are someone without any computer experience whatsoever, you should be able to use The Incredible Jack within a few hours of switching on. If you're experienced with computers the time for the learning curve will be much less than that.

With the program you have a relatively unsophisticated word processing system, a filing system and a mathematical facility all contained on the one disk.

For many small businesses this would be almost everything that would be needed in order to write letters, prepare simple accounts, sort out quotations and maintain a mailing list.

It is also the ideal way for the home user to build a part of the business functions of the computer into an Apple system.

The Incredible Jack is not massive, it is not immensely flexible, it does not contain a multitude of features. But it is not intended to do any of these things.

It is a unique package.

It allows you to write, to use mathematical calculations and to refer to a simple address list without changing disks. And that, as they say on television, is incredible. □

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Australian Business PC Report

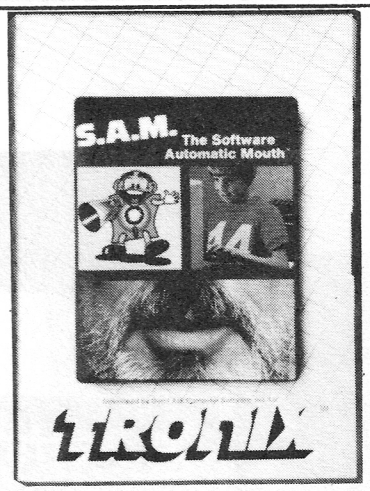
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Randwick, NSW 2031

Say it again, Sam



by Gareth Powell

I have just been listening to my Apple delivering the Gettysburg address. And after that it read out the soliloquy from "Hamlet". OK, it didn't sound like Sir Laurence Olivier, nor yet Sir John Gielgud. It didn't even sound like John Singleton.

But it was a voice. With pauses, stress, low notes, high notes, emotion. It did not sound like one of the Daleks from "Dr Who". It sounded like someone speaking over a fairly old telephone.

The worker of this miracle is a small board and program called SAM, which stands for the Software Automatic Mouth produced by Don't Ask Computer Software. (I am enraptured by the name of this company and can visualise all sorts of conversations. "Who do you work for?" "Don't ask").

New generation

This is one of a new generation of speech synthesisers. The originals all had flat, tinny monotone voices. Sometimes it was difficult to understand what the devil they were saying, except whatever it was seemed horridly impolite.

These early synthesisers used a "speech compression" of one sort or another. The way in which the system works is as follows. A phrase or word is recorded as a whole. Then using a piece of mathematical conjuring, the wave form produced by this phrase is transformed into a digital signal (all those 0s and 1s that a computer understands) so that it can be saved on a silicon chip without taking up a lot of room. When a phrase is needed it is simply called up from memory and transformed back into a waveform.

Depending on the sophistication of the techniques and the quality of the loudspeaker, the sound ranges from barely adequate to quite acceptable. But you are, of course, restricted to those words or phrases you have recorded and then programmed into the chip. As there is only a finite amount of space the numbers of words or sentences available to you are limited.

Unlimited vocabulary

SAM is an unlimited vocabulary (and, indeed, an unlimited language) speech synthesiser. It achieves this by breaking speech down into phonemes – these are the atoms, the building bricks of spoken speech. And there are a lot fewer of these phonemes than you imagine. With English you can make a reasonable stab at reproducing the English language with just forty of them. But a phoneme is not the beginning and the end. Timing is everything. Therefore you need a way to introduce a time for the phoneme to sound and a time for blending one phoneme into another. Using these controls you can specify timing, intonation and inflection.

The end result can be quite excellent, providing you are willing to experiment and use a phonetic language which looks not at all like the English you are used to. For example "baby" comes out as "BEY4BIY" while "transportation" comes out as "TRAE5NZPOHRTEY4SHUN". Not the simplest langage in the world to write, but the end results are eminently satisfactory.

It is important to use a reasonable loudspeaker in a good case with this new generation of voice synthesisers, otherwise no matter what you do, the sound will come out tinny.

To demonstrate how versatile a speech synthesiser like SAM can be, I wrote a small program for it to speak three short sentences in Cantonese, a language of immense subtlety and using seven tones to each word.

The sentences were quite comprehensible. Which means that the synthesiser is a lot smarter than I am. When I speak Cantonese (admittedly with a Welsh accent) I am very frequently misunderstood.

Issue warnings

This relatively inexpensive form of speech synthesiser (I paid under a hundred dollars for mine, but a half-smart electronic technician could wire one up from the several kits available for less than that) means that my computers can now talk. And, better still, issue warnings to anyone who is using, say, a word processing program, and is about to do something horribly wrong like wipe twenty pages of copy. Then, the computer can speak up loud and clear and say "Save it first, you drongo". Or some other suitable phrase. I've programmed mine to say far worse things than that but I am, after all, a journalist.

Getting a computer to talk is relatively easy. But can we get them to listen?

Voice recognition

I think the answer at the moment is probably not. I've tested a multiplicity of boards attempting give this effect and the state of the art is probably the board produced by Texas Instruments for their fairly professional personal computer. It is true that it does react to certain commands. And it is true that it does achieve a very high level of voice recognition. But not nearly high enough.

There is very little point in having a computer that understands instructions like "save", "stop" and "print". These can all be far more easily catered for with a single key stroke.

What is needed is a computer to which you can dictate letters.

If a personal computer cannot format and type out a letter direct from voice dictation, then in my opinion, that computer does not have voice recognition.

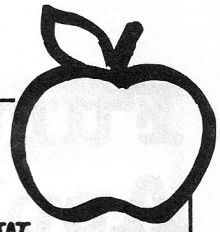
And as far as I know there is no

computer in the world that fulfils that criteria. Yet.

Airline answering device

In Finland there have been some amazing breakthroughs in this area but, there is still a long way to go. I tested a fairly esoteric and immensely expensive set-up in the United States that was programmed to operate as an answering device for an airline. The conversation went something like this. "Good morning, where would you like to travel?" "Hong Kong." "Hong Kong. We have flights leaving every day of the week. What day would you like to travel?" At this stage I inadvertently sneezed. "Thursday," said the computer.

Voice recognition still has a long way to go. But synthesised speech is already here and readily available. If you use it for nothing more than making a computerised game of strip poker a little more lively (I have, it does) it seems to me worth the price. □



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Further thoughts on the Apple IIc

Apple IIc, monitor and stand



by Gareth Powell

In our last issue we reviewed at great length the new Apple IIc, which we consider one of the major personal computers of our time. It is a machine which we believe will send Apple surging even further forward on the path to prosperity.

But even at this early stage people are wondering about ways in which the machine is going to expand, ways in which the machine is going to be improved.

The first obvious area is in the disk drive. At the moment Apple have made, in our opinion, the perfectly correct marketing decision to retain a standard five-and-a-quarter inch floppy disk drive built into the side of the machine.

Twin drives?

But there is no doubt that in the relatively near future (and how near that future is no one knows) the single drive will be replaced with either one, or even possibly two, 3.5 inch, double-sided, double-density drives from Sharp, with whom Apple have a working arrangement.

When that happens we will have effectively four disk drives with a total capacity of something approaching two megabytes.

There will be four disk drives because on the newest systems each side of the disk is addressed as if it were a disk drive. What this will mean to the machine is that for word processing we will be looking at packages that access the disk as if it was virtual memory.

Where else do we see changes?

Go faster stripes

The 65CO2 can probably be given some extra speed. At the moment this new microprocessor has a clock speed of 1.023 Megahertz and will perform up to 500,000 eight-bit operations per second. It would not be a task of insuperable magnitude for that clock speed to be doubled. Apple's Lisa, and to a lesser extent the Macintosh, have been criticised for not being quite as fast as one could wish. There are few applications for the IIc where extra speed is needed, but there is no doubt that in those applications – specifically spread sheets – it would be extremely welcome.

The 65CO2 is a CMOS (complementary metal oxide semi-conductor) the implementation of the 65O2 microprocessor which has served Apple so well over the years. It is an extension of the 65O2's instruction set with 27 new instructions, and offers faster graphics and arithmetic operations. It runs, as we have already said, virtually all existing Apple II software. But new software will be written to take advantage of the new instruction sets and this new software will not in itself be compatible with the IIe and the II+.

The IIc extends the use of custom-designed integrated circuits beyond that of the original IIe design.

Integrated circuits

There's an input/output unit and a memory management unit, plus a custom timing generator chip that generates several time and control signals and a general logic unit that provides logic control required by the system.

The disk controller unit is the same as the disk controller used on the Macintosh and is a one-chip, large-scale integrated LSI version of the disk controller originally designed by Steve Wozniak for the Apple II.

It is referred to as the IWM, and (if somebody isn't seriously pulling our leg) we're assured that stands for the integrated Woz machine.

The increased use of LSI (large-scale integrated) ICs has permitted Apple to reduce the number of chips in the IIc. It has sixteen 64K bit Random Access Memory chips which gives the computer a standard 128K bytes of RAM. Besides these RAM ICs the IIc only has 21 chips.

Fewer chips

This is quite amazing when you consider that it is three chips fewer

than the number of non-RAM ICs in the IIe, despite the fact that many of the functions performed by cards such as the disk controller, the serial interfaces, the 80-column circuitry and so on are included in the IIc as standard. With the IIc there are of course no slots readily accessible to the user.

Apple have clearly made the decision that portability and ease of use are of far greater importance than expansion possibility.

The IIc is marketed specifically for people who have no desire to mess around with the hardware. (For people who like to mess around, the IIe will still continue.)

Nevertheless the IIc lends itself to some quite dramatic improvements, which we may see implemented by Apple – or even outside suppliers – in the relatively near future.

ProDOS

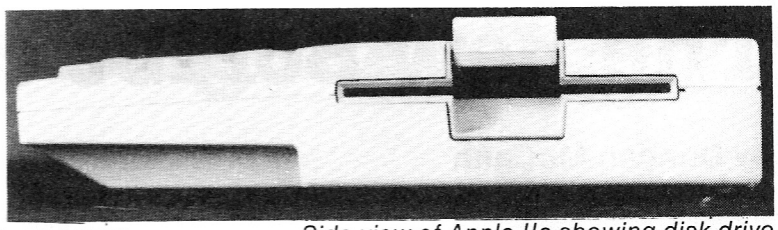
The IIc comes with the Apple's recently-released ProDOS operating system. This offers a considerable increase in performance over the normal 3.3 of the IIe.

ProDOS includes UNIX-like file structures compatible with the Apple /// operating system. Not much point, we admit, in that the Apple /// appears at long last to be going down the gurgle.

Apart from the thousands of software producers panting in the wings with their new offerings, Apple themselves are introducing a new set of software for the IIc including an integrated database management, word processing and spread sheet program; an Apple Logo which can take advantage of the vastly expanded memory, Apple Educational Classics and a communications program called Apple Access II.

The last one is interesting because the IIc does not currently have a built-in modem. The IIc Read Only Memory appears on the surface to be very similar to the IIe ROM as far as programmers are concerned.

In actual fact it was redone almost completely. Most interestingly a series of 32 graphic characters were installed in the character generator ROM. These characters, which Apple call Mouse Text, are a series of icons designed to let programmers set up a user's interface very similar to that found in the Lisa and the Macintosh.



Side view of Apple IIc showing disk drive

Enter the mouse

This means that we will be seeing Mouse-controlled IIcs and we will also be seeing icons on the IIc screen before very long.

These characters, incidentally, can be called directly and therefore it will be much faster to move them around the screen than the bit-mapped characters which are a feature of the Macintosh.

The full-screen flat panel display Apple hope to introduce later this year comes from Sharp. It is a liquid crystal display which works off a series of individual pixels twice as high as they are wide. This makes the characters in the display appear somewhat flat.

However, even in the 80-column display mode the characters appear very crisp and the display produces quite remarkable high-resolution graphics.

LCD display

It is stated that the liquid crystal display panel will have three graphics modes:

low resolution – 40 horizontal by 48 vertical;
high resolution – 280 horizontal by 192 vertical;
double-high resolution – 560 horizontal by 192 vertical.

In truth we can't see how this is going to work but no doubt all will come clear when we see the finished machine working with its liquid crystal display units.

What the Apple IIc lacks as far as we're concerned is a modem.

There is no doubt that at some time in the very near future we will see a modem included in the IIc.

C/PM software

Whether we will ever see a Z-80 card added – the other obvious omission – is another question altogether.

The use of C/PM software is a fairly major area with Apple. Z-80 cards are one of the most common additions to the Apple II. We cannot see why there should be any major problems including a Z-80 circuitry in the design as it stands, and it may be that we will see this in the near future.

Taking it from the top, we can say that as it stands the IIc is one of the most desirable computers we have ever tested.

We can also look forward to the possible implementation of some of the Macintosh/Lisa software in the near future.

Future thoughts?

A little further into the future it is quite possible that we will see one or even two micro disk drives built in instead of the current five-and-a-quarter inch floppy disk drive.

It is also possible that we will see a modem installed which will be working at 300 baud at least and possibly 1,200 baud.

It is also quite likely that we will see an implementation of the Z-80 chip so that the machine can run C/PM software.

If you want sky blue yonder stuff, we think that at some stage another version of the IIc will become available which will use the guts of the Macintosh as its base and will provide the user with half a Megabyte of Random Access Memory. There is no doubt that it can technically be done. It will be up to the marketing department of Apple – a group of people who appear to be collectively absolutely on the ball – to decide whether such machine would be a world-wide winner. We know that this is true of the IIc. We suspect it would be true of such a hybrid machine.

Apple in the lead

The Apple IIc firmly establishes Apple's position as one of the two major companies in the hardware computer market. It will need a revolution of major dimensions to move it from that position. □

The new Scribe colour printer

by Duncan McCann

The new Scribe printer which we described in our last issue is a plain-paper thermal transfer printer with colour capability.

That needs some explaining.

We got it wrong. When we first read about it we were imagining all sorts of complex thermal-printing techniques. What in fact the Scribe does is print on almost any paper surface – we understand it can even print on projection transparencies.

It has two resolution modes and can either operate at high speed at 80 characters per second or it can produce letter-quality printing at 50 characters per second. It is relatively quiet.

Where we got misled was in thinking that the print head worked without a ribbon rather like the old Silentype. In fact, the print head consists of 24 resistance elements that are arrayed in a vertical column.

When the machine is printing the head presses against a ribbon. This ribbon is made of polyester and uses a carbon-filled paraffin ink. The resistance elements in the head pulse briefly which heats them and melts the ink to deposit on the paper.

We're now moving into the area of extremely high technology.

The design of the print head permits a resistance element (and remember there are 24 of them) to rise to a temperature above 150 degrees Celsius and then to drop to below 35 degrees Celsius within the space of several hundred microseconds.

The lower range is well below the melting point of the paraffin wax in the ribbon.

The result is that the letters do not smudge one into the other. The dot resolution of the Scribe can range as high as 63 horizontal by 52 vertical dots per square centimetre in letter mode.

There are two ribbons which you can use with the Scribe.

One is all black for standard printing and the other is a colour ribbon that has different colours laid out in consecutive bands. Although there are only three colours, the Scribe, by placing dots close together, gives the impression of providing a seven-colour spectrum.

Apple Macintosh



The Scribe, priced at around $500 odd retail, is not ideal for an office situation where there is going to be a vast throughput of printing.

That is because of the cost of the ribbons. A black ribbon will provide about 80,000 characters and will cost something between seven and ten dollars. Working it out very quickly, that's about 12,000 words or over 20 cents for a medium-length letter.

Colour ribbons are going to cost as much as $14.

This means that the Scribe will be ideal for use where high throughput of printing is not required and a very quiet printer which can produce colour graphics is.

If you are willing to put up with fairly low-quality printing, it is possible to rewind the black ribbon and run it through at least three times. We know because we've seen it done. But the end result is something less than satisfactory.

There is no doubt that with this Scribe machine Apple have made a major breakthrough, which is going to create a fairly substantial stir in the electronic printing area.

For example it is only a few weeks ago that we were testing the C Itoh 8510C, which we considered to be, for a colour printer, a good buy at around $1,400. This card was almost immediately trumped by Hewlett Packard announcing a colour printer in the $900 area.

How they are going to compete with Apple, offering this colour printer at $500+, beggars the imagination.

It may be that a case could be put forward for these other dot matrix printers in that they will not require their ribbons replaced so frequently and they will not cost as much to run.

Possibly.

But we believe that the design of the Scribe and the way in which it fits so well with not only the IIc, but also the Macintosh and the Lisa, means that once again Apple have stolen a march on all their competitors.

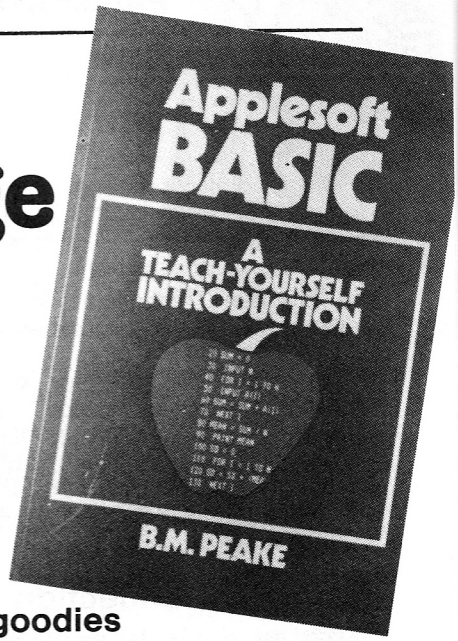
□

Apple Scribe colour printer



Learning the language

by Gareth Powell



Do you have to be able to write programs to use an Apple computer?

Before we rush in with the obvious snap answer of no, of course not, let's think about it for a while. It is perfectly possible to drive a car without having the faintest idea how the combustion engine works. But there is no doubt that you will be a better-equipped user and buyer if you do know some basic mechanics.

You can eat at a first rate restaurant and not have the faintest idea of the ingredients of the various dishes and still enjoy yourself. But you will enjoy eating more if you know something about the food and its preparation.

You can take great pictures with a 35mm camera and not have the faintest idea what is going on when you press the shutter release. But I'm willing to bet good money you will take better pictures if you have at least a vague idea of how your camera works.

Similar logic

The same logic applies to learning the simplest elements of programming if you are going to own an Apple.

Sure, you can operate an Apple on the basis that what is going on inside is white man's magic and you just don't want to know about it, thank you very much.

Lots and lots of people do. Possibly the larger percentage of Apple owners. But I think an understanding of how programming works, why BASIC is such a popular language, how a program is designed and constructed, will help you to get far greater use and enjoyment from your Apple.

And learning the rudiments of programming is not difficult.

Sure, all those bearded men with corduroy trousers and boiled lollies in their pockets would have you believe it is a difficult and arcane art. Something understood only by members of the Australian Computer Society.

It is, in my opinion, in the interests of most employees of data processing departments to see that the great unwashed (that's you and me) should be kept in a state of blissful ignorance in case they suddenly realise that the emperor has no clothes. And that a personal computer can, indeed, take over many of the tasks previously held sacred to a group who called themselves "computer professionals" who are huddled in a protective laager around their mainframes against the onslaught of the personal computer.

Simplistic no

So when we ask the question, do you need to know programming to use and enjoy an Apple, the first and simplistic answer is no, of course not.

Almost any problem that can arise in the world of personal computers has almost certainly been solved somehow, somewhere by a professional programmer, and it is unlikely you will be able to do it better.

There is little point in re-inventing the wheel when you could be doing something far more profitable and enjoyable with your time.

Yet I am of the view that it is almost essential for you to know at least the rudiments of programming if you are ever going to get the full benefit of your Apple.

In this magazine we are opposed to jargon and the obscure language so beloved of professional programmers. And we have taken a very gentle line on programming, feeling too much on programming would frighten readers off. And we are probably right in that belief.

But now the time has come to say that while we are really not into running courses for absolute beginners in BASIC, we think that anyone with an Apple should at least try to see whether they can grasp the rudiments.

All goodies

To check on this growing belief I have been using a series of programs that teach you to write in BASIC, your basic, as it were, personal computer programming language. And all of them, without exception, were well written, well conceived and well documented.

I have not yet found a dud.

Remarkable.

They take the absolute beginner step by step (that is, in fact, the name of one of the programs) through the essential elementary details of programming.

At the end of a short course of these programs you certainly couldn't write a full scale accountancy package. But you should be able to write at least a simple program that would set up, for example, a personal telephone directory.

There are, of course, some people who find immense satisfaction in writing programs.

They are much the same sort of people who enjoy solving crosswords, playing chess, or working out wiring diagrams. They become happy home hackers because they enjoy programming for its own sake.

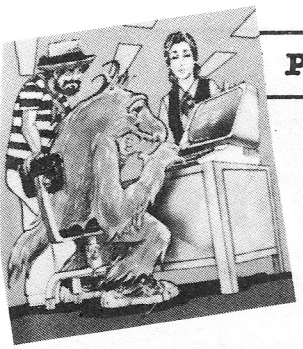
I'm not talking about them.

I'm talking of programming of a much lower order, where programs can be amended, adapted, adjusted, so your needs and requirements are precisely catered for.

Getting to that level of expertise is extremely easy, and anyone should be able to do it in a week of spare time study.

The lessons I have been looking at ranged over several titles.

Don't worry about whether your local computer shop stocks precisely



the program I mention. As I said earlier, I have tested dozens and they all seem remarkably good.

Two I have had great fun with are "Micromedia Basic Tutor" which appears to be a home publishing venture by "Stephen's Graphics Company" and "Hand Holding Basic" by Neil Bennett published by Apple Computer.

Australian connection

The last was by far and away the most interesting.

It appears to have been originally published by Apple in America in 1980. The author, N.W. Bennett is, I am fairly certain, an Australian, as the book is dedicated to various Australian personal computer luminaries including two from the University of Wollongong and to Rudi Hoess who was then the founding father, presiding genius and owner of Electronic Concepts.

"Hand Holding Basic" is not solely a tutorial on programming although there is no doubt it can be used as such.

As a program it has two unique features.

Firstly it will not allow you to write a single line of a program that is not absolutely perfectly acceptable to the computer.

Secondly it lets you see what a program is doing while it is running.

Once you have learned something about programming you will quickly find that "Hand Holding Basic" is also a useful debugging tool which can very quickly help you to sort out a problem program.

There are, literally, hundreds of books and programs to let you learn the lingua franca of personal computers – BASIC. Choose one at random and see if you can't pick up just the BASIC basics. It is well worth the effort.

Please understand that I am not suggesting that you HAVE to learn BASIC to enjoy this magazine. You don't even have to know English very well, the way that it is written. But I do honestly believe that an idea of how programs are constructed will add to the pleasure of your Apple computer. □

Tips and Techniques

by Graham P. Black

I have had an APPLE for just over five years now, and I usually find a new problem every time I write a program. My latest machine is the Apple //e, and I am programming with the Extended 80 Column Text Card. I have discovered that this card does not like the INVERSE and NORMAL commands. PRINT CHR$ (15) replaces INVERSE, and PRINT CHR$ (14) replaces NORMAL. PRINT CHR$ (21) deactivates the card. It is essential to deactivate the card before accessing another I/O port, such as a printer in slot #1. A summary of these commands can be found on pages 45 and 46 of the 80 Column Text Card Manual.

Subroutines are the heart of any basic program. If there is a routine that you will use more than once, then you should go to it with a GOSUB. Here are some that I am sure you will find very useful.

****

I have always taken a dislike to the flashing cursor, sitting there waiting for me to press a key, so I always use this little routine. Whatever you do, don't forget the semicolons, or the screen will scroll up one line.

```
18000  REM PAUSE WITHOUT
       CURSOR
18010  VTAB 23: HTAB 10:
       INVERSE: PRINT "ANY KEY
       TO CONTINUE";: NORMAL
18020  WAIT -16384,128: POKE -
       16368,0
18030  VTAB 23: HTAB 10: PRINT "
                  ";: REM 20
       SPACES
18040  RETURN
```

****

When I build, add to, or delete part of a string, I always call for confirmation, before the final construction or destruction takes place. At this stage, if I have made a mistake, I can abort and start again. For this I use the following subroutine.

```
18100  REM CONFIRM (Y/N)
18110  VTAB 23: HTAB 13: PRINT
       CHR$(7); "CONFIRM (Y/N)
       ";: GET AN$: PRINT AN$;
18120  IF AN$ <  "Y" AND AN$ <
       "N" THEN 18110
18130  VTAB 23: HTAB 13: PRINT
       "                ";: REM
       14 SPACES
18140  RETURN
```

The PRINT CHR$(7) simply draws my attention to the prompt in line 18110. Line 18120 is the error trap which will only let you type "Y" or "N". Line 18130 erases the message before returning to the main body of the program where you decide what to do with your answer.

****

This next one is one method of rounding off the dollars and cents, and putting them into a string with a length of 7 characters ready to print. i.e. X = 4.5 : X$ = " 4.50"

```
18200  REM RIGHT JUSTIFY
       DOLLARS AND CENTS
18210  X$ = STR$ (INT (X * 100 +
       .5))
18220  N = LEN(X$)
18230  IF N  2 THEN X$ = LEFT$
       (X$,N - 2 ) + "." + RIGHT$
       (X$,2)
18240  IF N = 1 THEN X$ = "0.0" +
       X$
18250  IF N = 2 THEN X$ = "0." +
       X$
18260  X$ = "      " + X$: X$ =
       RIGHT$ (X$,7)
18270  RETURN
```

****

CONCATENATION:-

STRING$ manipulation is a very

important part of basic programming. This is the method used in a data base program for storing information to disk. Let us say, that for our files, we require NAME & PHONE NUMBER. In our program, we INPUT this data in three separate operations. First we require the name, so we call our variable NA$. Next we require the area code, and we will call this AC$. Last but not least, we require the phone number itself, and this we will call PH$. We now must decide how many letters we will allow for each string. Let us assume that no name will exceed 25 characters in length, and that the phone number will contain no more than 14 characters, including area code and separators. When the data has been entered, we must check to make sure that it does not exceed the limit, and that it is exactly the right length, so that we will always know exactly where to find the data from within the string. I always insert a space between each string as I assemble the main string. By doing this, looking at the string, I can see exactly where each component part is located. This method also sets things up so that the string can be printed "as is". The string ST$ will now have a length of 40 characters. Our strings will look something like this:

```
NA$ = "                         "
AC$ = "(...)"
PH$ = "...-...."
ST$ = "                         (...) ...-...."
```



```
10 HOME
90        REM ENTER NAME AS NA$.
100 INPUT "              NAME: ";NA$
110       REM - IF THE LENGTH OF NA$ IS GREATER
120       REM - THAN 25 THEN GOTO LINE 100 AND
130       REM - ENTER IT AGAIN.
140 IF LEN (NA$) < 25 THEN 100
150       REM - IF THE LENGTH OF NA$ IS LESS THAN
160       REM - 25 THEN ADD " " TO NA$.
170 IF LEN (NA$) < 25 THEN NA$ = NA$ + " ": GOTO 120
180 INPUT "     AREA CODE: ";AC$
190       REM - IF THE LENGTH OF AC$ IS GREATER
200       REM - THAN 3 THEN GOTO LINE 180 AND
210       REM - ENTER IT AGAIN.
220 IF LEN (AC$) < 3 THEN 180
230       REM - IF THE LENGTH OF AC$ IS LESS THAN
240       REM - 3 THEN ADD " " TO AC$.
250 IF LEN (AC$) < 3 THEN AC$ = " " + AC$: GOTO 250
260       REM - AC$ IS NOW THE CORRECT LENGTH
270       REM - SO NOW ADD THE BRACKETS.
280       REM - "(...)"
290 AC$ = "(" + AC$ + ")"
300 INPUT "PHONE NUMBER: ";PH$
310       REM - IF THE LENGTH OF PH$ IS GREATER
320       REM - THAN 7 THEN GOTO LINE 300 AND
330       REM - ENTER IT AGAIN.
340 IF LEN (PH$) < 7 THEN 300
350       REM - IF THE LENGTH OF PH$ IS LESS THAN
360       REM - 7 THEN ADD " " TO PH$.
370 IF LEN (PH$) < 7 THEN PH$ = " " + PH$
380       REM - INSERT "-" IN PH$.
390 PH$ = LEFT$ (PH$,3) + "-" + RIGHT$ (PH$,4)
400       REM - DISPLAY ALL 3 STRINGS SO THAT
410       REM - THEY CAN BE CHECKED.
420 HOME
430 VTAB 8: HTAB 1: PRINT NA$
440 VTAB 10: HTAB 15: PRINT AC$;" ";PH$
450       REM - CONFIRM THAT ALL ENTRIES ARE
460       REM - CORRECT BEFORE THE FINAL
470       REM - ASSEMBLY OF THE STRING.
480 GOSUB 18010: REM CONFIRM (Y/N)
490       REM - IF THE DATA IS NOT CORRECT THEN
500       REM - GO BACK AND START AGAIN.
510 IF AN$ = "N" THEN 10
520       REM - IT IS NOW TIME TO ASSEMBLE
530       REM - THE 3 STRINGS WITH A SPACE
540       REM - BETWEEN EACH ONE AND CALL
550       REM - THEM ST$.
560 ST$ = NA$ + " " + AC$ + " " + PH$
570       REM - DISPLAY ST$.
580 VTAB 12: HTAB 1: PRINT ST$
590 END

18100       REM CONFIRM (Y/N)
18110 VTAB 23: HTAB 13: PRINT CHR$(7);"CONFIRM (Y/N) ";: GET
AN$
18120 IF AN$ < "Y" AND AN$ < "N" THEN 18110
18130 VTAB 23: HTAB 13: PRINT "                    ";: REM 14
      SPACES
18140       REM - THE SEMICOLON IS NECESSARY TO
18150       REM - STOP THE SCREEN FROM SCROLLING
18160       REM - UP ONE LINE.
18170 RETURN
```

When you use GET AN$, as a general rule, always follow it with a PRINT statement, especially if you are using DOS commands from within the program. The example above is the exception to this rule because the screen will scroll up one line if you insert a PRINT statement, and no DOS command will be issued at that point. When you issue a DOS command it must be preceded by a <CONTROL-D which must be the first character on a new line. i.e.

```
10 D$ = CHR$ (4): REM CHR$ (4) =
<CONTROL-D
100 PRINT "PRESS ANY KEY ";:
GET AN$: PRINT
110 PRINT D$;"CATALOG"
```

Type it in and try it for yourself. Also try it without the PRINT in line 100 and see what happens. The second method makes sure that the <CONTROL-D is on a new line by issuing a carriage return first.

```
10 D$ = CHR$ (13) + CHR$ (4):
REM CHR$ (13) = <RETURN
110 PRINT "PRESS ANY KEY ";:
GET AN$: PRINT
120 PRINT D$;"CATALOG"
```

****

Do you use the RENUMBER program on your (Europlus) System Master disk? Do you have trouble with it changing some of your formulas as well as the line

numbers? RENUMBER has a bug which has never been corrected (It may have been corrected for the //e – I have not checked). All you need to do is LOAD RENUMBER, and type the two following pokes:-

]POKE 4789,172
]POKE 4790,171

Now put a formatted disk in the drive and type SAVE RENUMBER.

I have not tried the RENUMBER program on the //e System Master, but it appears to be different, and may well have been corrected. (Don't quote me. Try it for yourself and see what happens. These pokes certainly fix the older versions.)

****

Would you like to have some fun with some POKEs? Here are the addresses for the first and last character of each line – lines are 40 characters long. You must obtain the ASCII value for each letter and add 152. i.e. the ASCII code for 'A' is 65. Now add 152 and you get 193 (for NORMAL mode. Don't add anything if you want it INVERSE.) If you want to print the word APPLE][on the 10th line at column 13, then you would type the following (with or without the line number):

100 POKE 1333,193: POKE 1334,208: POKE 1335,208: POKE 1336,204: POKE 1337,197: POKE 1339,221: POKE 1340,219

You can also do it in a FOR NEXT loop, with the aid of DATA statements, like this:

```
10 REM    A , P , P , L , E , , ] , [
20 DATA 193,208,208,204,197,32,
221,219
100 HOME
110 FOR I = 1333 TO 1340
120 READ X
130 IF X = 32 THEN NEXT: REM
SPACE
140 POKE I,X
150 NEXT I
```

Line # POKE address
00 ... 1024 – 1063
01 ... 1152 – 1191
02 ... 1280 – 1319
03 ... 1408 – 1447
04 ... 1536 – 1575
05 ... 1664 – 1703
06 ... 1792 – 1831
07 ... 1920 – 1959
08 ... 1064 – 1103
09 ... 1192 – 1231
10 ... 1320 – 1359
11 ... 1448 – 1487
12 ... 1576 – 1615
13 ... 1704 – 1743
14 ... 1832 – 1871
15 ... 1960 – 1999
16 ... 1104 – 1143
17 ... 1232 – 1271
18 ... 1360 – 1399
19 ... 1488 – 1527
20 ... 1616 – 1655
21 ... 1744 – 1783
22 ... 1872 – 1911
23 ... 2000 – 2039

To find out what the ASCII codes are, type in this little program.

```
5 HOME
10 FOR I = 190 TO 255
20 PRINT "CHR$ (";I;") = ";I,
30 NEXT
```

HAVE FUN !!!

****

Here is something for the BUG-HUNTER to ponder over. Enter this little beauty exactly as shown. To get it up and running, DO NOT type RUN. Type GOSUB5 from the keyboard and enter "ERR" at the INPUT prompt.

```
5    INPUT A$: RETURN
100    TEXT: HOME: VTAB 10:
PRINT "APPLESOFT ERROR"
```

Now delete line 100 by typing 100 <RETURN and try again.

****

HELP !!!!

Can some kind person please tell me how to activate the underscore cursor when using the 80 column card? I cannot find it in any of the manuals that came with my //e.

****

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Why your Apple is far from outdated

We are all going to have to be very careful that we do not let the personal computer become a plaything of fashion. Because computers are so fascinating, there is a terrible temptation to want the latest development as soon as it appears on the market. That changes the computer from being a working machine into a trendy status symbol.

I have just looked at two situations where people have perfectly competent Apple computers, working exactly the way they want, producing the result they want in the way that they want.

In both cases, the Apples have an immense amount of as yet untapped power. And in both cases the owners are wondering whether they should upgrade to a newer, bigger, better, more powerful computer with bells and whistles.

Need they, too, dress like Charlie Chaplin and boast they have a PC?

Do they need to spend all that extra money?

The answer is almost certainly no.

Positive inertia

The fictional detective Nero Wolfe advocated a policy of "positive inertia" in solving problems. It is a policy that we would recommend to many owners of personal computers.

If your Apple is doing what you want without any major problems, then before you go charging down to your local computer store to get the latest whizz-bang special, just ask yourself what you are lacking and whether in fact your Apple cannot provide the extra for you with some small modifications.

Many users are unaware of the number of possible ways to use, extend and expand an Apple computer.

How can you find out if you are getting the maximum out of your Apple?

You can find out if you are getting enough value out of your investment in your machine by keeping a weekly log.

If your Apple is being used for less than 10 hours of the week then you are not getting value for your money.

The last thing you need is a newer, bigger computer.

Putting it to work

What you need is to put your Apple to work.

Remember the Apple is not in the union.

It does not know about restrictions on working hours.

And it doesn't get bored. There is no point in letting sleeping Apples lie.

It is well worth waking them up and using them to the full limit of their potential.

The bottlenecks

The best way of looking at enhancing and using your Apple is to look for the bottlenecks. Many of these bottlenecks have a very simple solution.

Let us take a good example.

If you have a printer hanging off your Apple, it can stop the computer working for many hours of the day.

Simply because the Apple is able to feed out the information at a very high rate but the printer can only accept it at a slow rate.

The answer here is of course not to buy a new computer nor yet to slow down the printer (amazing to believe that one computer manufacturer recommends that very course of action). The answer is to buy a "buffer".

This is a very simple and relatively cheap mechanism which can accept all information from the Apple at its highest possible speed. It will then ration it out to the printer at the speed at which the printer can accept it.

As soon as you have finished a document and dumped it into the buffer, the Apple is again free for more work.

Now this may not appear to speed up the Apple. And in a theoretical sense of course it does not. But in a real sense it does exactly that, because it frees the computer for other tasks.

The cost of buying such a buffer is approximately one-twentieth the cost of buying a computer.

Disbelieve myths

Do not believe the widely held myth that a 16-bit computer is necessarily faster than an 8-bit Apple.

It just is not so.

In some cases an 8-bit Apple can operate faster than a 16-bit computer in certain types of programs.

But if you feel that your Apple is not working fast enough for you, then you can use a "go-faster" board. CompuMusic in Sydney have the Accelerator, which can triple the speed of your Apple.

Whisper it not in Gath and tell it not in the streets of Askelon, but we have used an American "go faster" board that took the Apple from a standard clock speed of one megahertz to just over eleven. Bearing in mind that the IBM PC is set at 4.77, you can see that is very quick indeed. However, so cleverly designed is this board that the United States government has decided it is a strategic weapon and may not be exported to Australia in case those damn Russians get hold of it. True.

Miserly memory?

It is indeed true that 64K of Random Access Memory seems miserly nowadays. (Although when

would you use more except in a large spreadsheet? You are going to write "War and Peace" with chapters?) There was always a theoretical limitation on an 8-bit computer but this has now been overcome by the elegant system of bank switching. There are lots of boards that will give you more memory than you know what to do with. The semi-rotund Harry Harper at Zofarry will fit you up with an extra 256K in double smart time.

Do you have any concept how large a spreadsheet you can make with that much memory? Enough to keep the board of BHP happy.

Where such memory comes in very handy is when you can pretend that it is a disk drive and load a program on to it. Then instead of the computer having to repeatedly access the real disk drive – which can be a time-consuming business – it can obtain the information from the pseudo disk which is the extra RAM card. This makes some accountancy programs operate at three times the speed.

User-definable keys

Another area where you may feel your Apple is lacking is that of user-definable keys. These are keys which can be defined to enter in a series of pieces of information that otherwise you would have to laboriously type in before you started using, say, a word processing program.

But there are several software programs that allow you to do just that. And you can always add-on a numeric keypad. Indeed, you can buy totally new keyboards to fit on to your Apple which have more than enough user-definable keys.

And they are a lot cheaper than buying a new computer.

There is always a temptation to have the newest, fastest, biggest.

But think about this.

If you get rid of your trusty Apple to buy a new, flash, whizz-bang marvel it is you that will be the guinea pig. It is you that will be discovering the bugs. And bugs there will be, we can assure you.

Sometimes it is better to be on the blunt edge of technology. Let some other sucker do the pioneering.

□

Where electronics ar

The Consumer Electronics Show ended last month in Chicago. There was an immense amount to see and an immense amount to learn. Much of it has nothing to do directly with Apple users, but a lot of the products could be regarded as straws in the wind indicating the way in which Apple computers might be moving in the near future.

It's difficult to put it into a coherent pattern and perhaps the best way that we can report it is to take snippets.

It's not just the computer industry that has got great problems with pricing and compatibility. The video cassette market is in a similar state of shambles. One of the greatest complaints that was being made at the show came from the advertising manager of TDK who said "The Koreans claim they can pay $5 a day to their workers – that's great but what about the quality you get when you pay that kind of money?".

Well, in our experience, the quality of the stuff that comes out of Korea is absolutely first-rate, including the monitor for the Apple IIe.

Another marketer from SKC charged that the major manufacturers were creating the problem. "They're not controlling the market. They promiscuously sell to anybody without controlling prices."

A song we have all heard before.

Obviously there's going to be a shake-out in the video cassette market in exactly the same way as we're going to see a shake-out in the computer market.

The Consumer Electronics Show awarded prizes for the best design and engineering shown in various products. The computer award was won by the Apple IIc, which will come as no surprise to anyone who reads this magazine.

Computer-compatible typewriters

Smith-Corona produced three new computer-compatible typewriters for the show, featuring the company's work erase correction system. This



can delete entire words at the touch of a single button, by utilizing a built-in memory which counts blank spaces between words. Prices were all around the $500 mark.

Interactive video disk

RDI Video Systems were showing an interactive video disk system.

This system incorporates speech-recognition and artificial intelligence with a vocabulary of over two hundred words and operates off a modified Pioneer laser disk player.

It's basically for the arcade game market and will be selling for somewhere around $2,000. It should only be a matter of time before this sort of technology becomes available in personal computers.

New keyboard

A new keyboard which will bypass the standard keyboard on the computer was announced by Koala Technologies. This was called "Muppet Learning Keys", a computer peripheral that simulated the contents of a child's school desk.

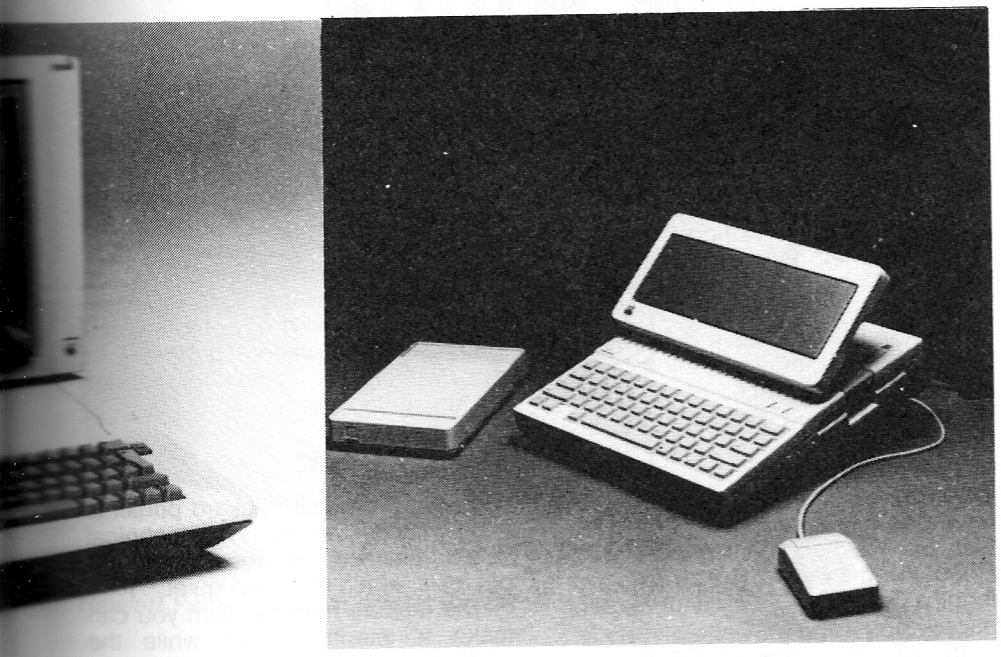
The Mylar surface of the board depicts various children's learning

e going

Apple IIe CPU/keyboard and monitor

△

Apple IIc, mouse, flat LCD screen and modem .



tools – compass, ruler, eraser – and it seems ideal for the pre-school ankle biters. This unit will be available for the Apple //e and IIc and the Commodore 64. Probably it will be on sale here next year at a price somewhere under $100.

Female market

The Executive Vice-President of the Neon Software Company said that "The audio business made the mistake of ignoring the female market and the computer industry is making the same mistake." Understandably, he was promoting a Women's Wear line of computer software.

"Not only has the computer business become an office-oriented, male-dominated field, but the retail settings are becoming very stand-offish. It can be difficult for a woman who is looking to get into computers."

This software is totally designed for the female market and is packaged like women's clothing complete with a hanger and price tag.

Wico mice

A board which would provide a Mouse capability to standard Apple II machines was announced by Wico Company, which produces a superior line of joysticks. The package is designed to give cursor capabilities to earlier machines.

Quotes

A good quote from this show came from a dealer working out of Colorado. He said:

"I think the software people are finally figuring out just how the computers work."

On the other hand a dealer from Avon, Massachusetts, said:

"From what I've seen so far I would say there is a lack of really innovative software." A Dutch distributor disagreed. "I think the quality of software is getting better."

Epson Elf and Fuji floppies

Epson, the Japanese company with a firm base in the United States, introduced the Elf, is a hand-size colour television with a minute liquid crystal screen. Look to see this sort of technology extended to computers in the near-future.

Fuji announced some of the new 3.5 inch (9 cm) disks with a capacity of one megabyte, which looks like being the standard for next year.

In the show report it was announced that these disks would have a capacity of "1,000K megabytes" which would make them the biggest memory disks in the history of the civilized world as we know it today. These errors happen to us all.

Educational programs

BroderBund, perhaps one of the best software publishers in the world, are now branching out in new directions. They are going heavily into the children's educational field as well as adding to their Personal Productivity series.

They will be producing a program which features the Muppets and they are also looking to introduce a Bank Street Filer and a Bank Street Mailer to join the Bank Street Writer and the Bank Street Speller in the firm's line of high-selling simple word processing systems.

Cheap printer

Okidata rocked everyone by producing a full-colour printer at $239. The printer uses thermal-transfer printing technology – not unlike the Scribe – and at the moment will interface with Apple, Commodore and Atari computers and popular software programs. It is claimed that the printer works with letter-quality printing at 60 characters per second.

Atari top-of-the-line

Atari started to show a new top-of-the-line computer which they say they will launch this year. Their vice-president of marketing said: "We will produce enough units of the new computer to satisfy demand this Christmas".

The new computer will have a double-sided double density disk drive, a modem, speech synthesiser and a database. It doesn't sound too exciting but we'll have to wait and see.

The Atari machines are going to be capable of running MS-DOS and Atari have announced that they're going to introduce an expansion box which will enable owners of the 800XL also to be able to make use of that disk-operating system.

Graph typewriter

Brother, producers of the typewriters which so easily tie onto computers, have introduced a "type-A-graph" electronic typewriter which is capable of producing four-colour graphs and is undoubtedly the world's first.

Dual disks

An amazing forecast was made by Thomas R. Dusenberry, manager of sales promotion for Parker Brothers – one of the biggest games manufacturers in the world.

He said "The dual disk concept in video games, one side IBM and one side Apple, is the way most video games will be offered by January."

Parker Brothers will be introducing a series of programs to work on the IBM PC Junior and the Apple II in this format which will reduce the number of display units that a dealer will need to carry.

Dusenberry went on to say "We solidly support the game business as long as it's viable, and our sales and profits are up to this year in games. People still use their game equipment and are buying premium games."

In all truth we can't see how this is going to work, but Parker Brothers have got a reputation for getting it right. Time alone will tell.

Seiko screens

Seiko introduced a screen which worked with 52,800 pixels each driven by a matching thin-film transistor. The set was an amazing 5.08 centimetres across.

Obviously if they can produce in colour working off pixels at that size the time of the ultra-portable colour computer cannot be far away.

Seiko also showed their wrist information system, incorporating a wrist-worn computer with an LCD screen and a pocket keyboard and controller. That's been on sale in America now for some months at $300-$400 and is very much the machine for the up-market executive.

What it actually does is open to some debate. It replaces in a sense a diary but it takes up much more room and is difficult to use.

However it makes the owner look on the cutting edge of technology. □

A silent printer for the Apple

by Gareth Powell

Why am I writing about a Hewlett Packard product in an Apple users' magazine?

Simple.

Hewlett Packard have produced a printer which is, in our opinion, going to change the face of personal computer printing permanently and irrevocably.

They have come up with such an excellent product they didn't even have one spare in Australia for us to test. So we had to borrow one in Hong Kong to write this review. The lengths we go to keep our readers happy.

In our office one of the biggest problems has always been the noise of the printing machines attached to the computers.

If you have ever heard two Qumes and two C.Itoh 8510s plus an Olympia typewriter all going at full chat you will realise that Dante's inspiration for his Inferno came a little too early in the piece for him to add the correct sound effects. There is a great line in "My Fair Lady" where Henry Higgins sings, "I rather would be willing, for a dentist to be drilling". And that's exactly what our printers sound like when they are operating under full load – which is sadly most of the time.

Solutions

There are ways, of course, around this. There are ways around everything.

The first is to build a large acoustic hood over your printer. The drawback is that these hoods take up a lot of space and cut down the speed and efficiency of your printer.

The second way is to position your printer in a remote room of its own.

We've tried this but it gets fairly difficult when the printer starts to jam with paper – it happens, you can believe it happens – and there is no one there to stop all that paper being wasted.

In the end we decided to put up with the noise in order to have the printers within easy access.

But there is no doubt that this sort of noise is a serious industrial problem in any sort of company and the noise from printers – dot matrix or daisy wheel – sometimes approaches the threshold of pain.

Almost silent

The new Hewlett Packard printer is almost totally silent. The technical figure claimed is less than 50 decibels, which is mouse quiet.

The makers happily claim you can make a telephone call while the machine is operating next to you.

And they are correct.

It is truly that quiet, and for this reason is the most revolutionary printer we have seen in recent years, apart from the laser of which more in a future issue.

The price is eminently reasonable, well under $1,000, and despite the daft name that Hewlett Packard have used – Thinkjet – the machine is selling as fast as it can be made available. Which is why we were not able to test one in Australia.

Are there any problems with this printer?

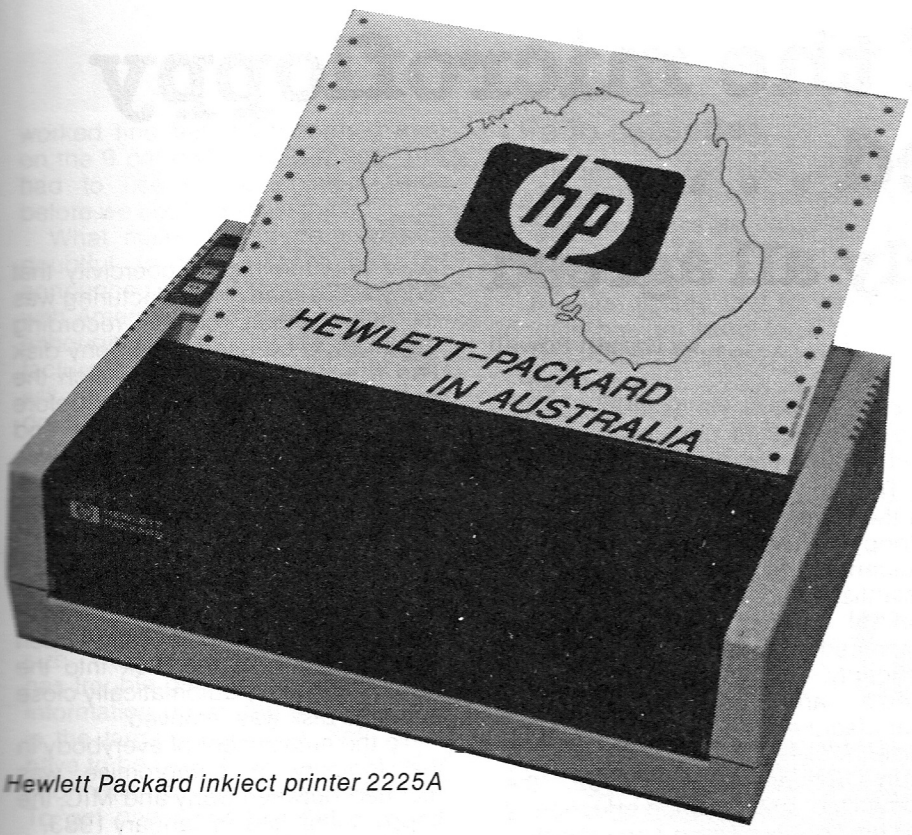
There is one, but it is not serious, it can be avoided and hardly detracts from the printer at all.

We'll come to that in a minute.

Previous experience

There have, of course, been ink jet printers before. IBM had one that worked extremely well. But it was not cheap and there was a small problem in that the ink tended to clog in the jets.

Hewlett Packard – a company renowned for its intelligent engineering solutions – has come up with a new concept. This is a disposable print head/ink reservoir, which resolves



Hewlett Packard inkject printer 2225A

for ever the problem of potential wear in the jet itself.

Nor does the problem of ink getting loose and spraying around arise. (Previously ink jet printers have been known to suffer their moments of madness, which ended with tears and tantrums all round and people covered in ink).

With the Thinkjet the print head issues ink droplets on demand by heating the ink and making a bubble rise to the surface.

This is the same principle on which your coffee percolator works, but on an infinitely smaller and more precisely controlled scale.

As a result there is no recirculating ink, nothing to clog except for the little jet itself.

Now this jet can, of course, become clogged if the printer is left unused for a while in dirty and desperate surroundings such as our office.

Built-in absorber

With fiendish cunning Hewlett Packard have built in an absorber that works to keep the ink spraying orifice clear. The absorbent pad to the left of the paper margin gets a fast blast from all jets before start-up just to see they are clear. And if you do get dust on the print head and some of the characters become a little misty, a quick wipe with a tissue solves the problem immediately.

The disposable ink container/jet is translucent plastic and you can easily see when you are out of ink.

You can get about 500 pages of A4 typing from each of these disposable ink containers, which remind us very much of those nasty plastic things they use for giving you milk on airlines and in motels. The container is "assembled as a negative-pressure environment", a new piece of computer-speak which means that if it is punctured ink doesn't spray all over the place.

The machine produces dot addressable graphics in two densities. In the lighter of the two, which works on a superior 11 dots by 12 – let us call it draft mode – the copy is coming through at 150 characters per second, which is fast enough for most medium sized office jobs. This speed is possible because the machine prints bi-directionally.

There are several fonts available in normal, condensed and compressed types. But because this is a dot addressable graphics printer the number of typefaces available is, in effect, limitless. You just need a graphics program that produces the typefaces that you want.

The snag

The minor snag referred to earlier is that ordinary computer paper is made with a long fibre paper. When the ink droplets strike the paper, instead of standing still and drying instantaneously they can spread. This spreading is minute but it can, on certain types of paper, give the appearance of blurred type.

The answer is improved paper.

Hewlett Packard have already spoken at great length to the computer paper manufacturers. Indeed, in the United States they are packaging their own. In the near future we will certainly see a paper which can use to the full the magificent resolution of which this machine is capable.

In a sense, we are now waiting for paper technology to catch up to computer technology. At the moment the probable answer is to roll the paper through heavy rollers during manufacturing (called super calendering) and possibly add a kaolin based machine coating.

In fact, in Hong Kong we were able to get hold of some short fibre paper from Toppan Moore who specialise in dealing with these sorts of problems and this paper printed beautifully.

We also know that ICI in England have produced an all plastic paper which has an almost totally non absorbent surface. When they first produced it some eight years ago it was an invention looking for a use.

Now that there is a massive over supply of plastics all over the world, the introduction of machines like the Thinkjet will use up some of this spare capacity, and save a few thousand hectares of forest every year at the same time.

Hewlett Packard have always had a reputation for producing magnificent computers for the top end of the market. With the Thinkjet they have produced a printer that will work with almost any computer, is reasonably priced and they have not sacrificed any of their engineering standards to do it. A small miracle indeed, that will revolutionise the market for computer printers. □

The age of the microfloppy has arrived . . .

and we've nearly all agreed on a standard

by Gareth Powell

Now that Apple have introduced the concept of micro-floppies into the Lisa and Macintosh, but not, as yet, into the IIe and IIc (more on that later) are we going to see more rationalisation and standards in the personal computer industry for micro-floppies?

Amazingly the answer appears to be yes.

Micro-floppy disk drives are one-quarter the size and half the weight of a conventional 5.25 inch Shugart disk drive, consume 50 percent less power, and typically can be produced for about half the price.

There are other advantages. They can contain an immense amount of information. Micro-floppies currently store between 358K bytes and 1 megabyte per disk, with 500K bytes being about average.

But will micro-floppies dominate the market?

And will the 9 centimetre (3.5 inch to the unconverted) disk be the selected size?

First of all we have to explain that the word micro-floppy is a total misnomer. The title should, in fact, be micro-hard case. (The fact that this sounds like an undersized recidivist from Pentridge is hardly our fault).

The disks are packed in a hard-shelled cartridge which protects them from damage. This makes them easily transportable and difficult to damage. And for their size, they can hold truly amazing amounts of information.

Why the standard?

But why 9 cm as a standard instead of all the other sizes that have been suggested and in some cases marketed?

The story goes back to May 1982 in the United States when the Micro Floppy Industry Committee (a name guaranteed to instil confidence) was established to try and create order out of chaos. By 1983, in an unprecedented show of intelligent solidarity, 22 leading disk drive media and personal computer manufacturers had joined the committee.

In September of 1982 the committee proposed the adoption of a 9 cm (3.5 inch) hard cartridge disk standard to the American National Standard Institute's Committee.

However, by that time Sony had already begun to sell its own version of a 9 cm micro-floppy drive. And although there were tremendous points of similarity between what the committtee wanted and what Sony had produced, there were points of difference.

These concerned the number of tracks on the disk, the thickness of the iron oxide coating, the type of shutter used to protect the head access window (where your disk drive reads and writes the information onto the disk) and the coercivity of the disks.

Slight differences

The Sony drive had 70 tracks while the floppy committee proposed 80. Both disks used metal hubs to cut down on wear.

The unit of magnetic resistance, the coercivity of Sony, was 580 oersteds whilst the suggested standard was 650 oersteds. Sony had an oxide layer on their disk 100 microinches thick while the MIC proposal was more like 40 to 50.

The idea behind the thinner oxide layer and the higher coercivity that Sony was already manufacturing was to allow much higher recording densities to be used. This Sony disk had a simple metal slide which the user had to manually open before putting the disk into the drive and also had to close as the disk was removed. Something less than ideal, as the shutter could remain open accidentally, or a greasy finger could touch the disk surface.

The floppy committee recommended a spring-loaded auto shutter which would automatically open upon insertion of the disk into the drive and equally automatically close once the disk was removed.

To the amazement of everybody in the industry, a compromise was reached between Sony and MIC, the floppy committee, in January 1983.

Agreed standard

The agreed standard was 80 tracks per side of the disk, a coercivity of 625 oersteds and an oxide thickness of approximately 60 microinches.

Sony, God bless their little cotton socks, in a move of stunning corporate perception and intelligence, immediately switched over to producing this second-generation type of mini-floppy, and there is very little doubt in our minds that it is going to be the standard of the industry in the very near future.

It has already been accepted as the standard by Apple, Atari, BASF, Matsushita, Memorex, Mitsubishi, Nashua, Olivetti, Philips, Shugart, TDK, Verbatim, Wabash and several others.

Against such strength it is unlikely to see the other types of drives survive.

The opposition

Let's look at some of others.

The 7.5 cm (3 inch) floppy-disk drive was initially launched by Hitachi. We actually fitted one to an Apple to see how well it worked. It

worked fine but the recording area on the 9 cm disk is 50% greater (we had to use our calculators twice before we could believe that).

What makes its future extremely doubtful is that Hitachi has not announced any volume agreements with American computer makers yet, although several Japanese manufacturers have announced that they will go with this standard. It is doubtful that they will go through with this decision. There are already some defectors and there will be more as the manufacturers face the inevitable.

The 7.5 cm (3 inch) drive's early supporter was Matsushita, and they have already announced that they will go with a 9 cm (3.5 inch) drive size. The smaller size micro-floppy has trouble getting one megabyte of information on to one disk (and that is the target to aim for). Both sides have to be used to get 500K bytes of information on each side in comfort. To get one megabyte capacity you have to move to a track density of 200 per inch which dramatically lowers reliability at the current state of the art.

IBM's micro-floppy

The proposed IBM 10 cm (4 inch) disk drive obviously has considerably more recording area than the 9 cm (3.5 inch) disk drive.

But as the design stands it will only store 358K bytes, less storage capacity in a larger package than a 9 cm drive. It is – as far as can be judged by the specifications – also fairly slow on access time and most of its features are totally non-standard.

If IBM decide to use this drive they will be doing the personal computer industry an immense disservice, and they will have flown in the face of most of the informed opinion in the industry.

We feel sure that they will not do that.

We think they will drop the 10 cm (4 inch) drive and move to the industry standard of 9 centimetre (3.5 inch) floppies. Sanity will indeed prevail.

And so out of chaos we're getting reason.

LPs to cassettes

The analogy has been made that the new micro floppies compare with 5.25 floppy disks as cassette tapes compare with LP records. It's not a bad parallel.

It's nice to see that for once the industry has got its act together.

How does this affect Apple?

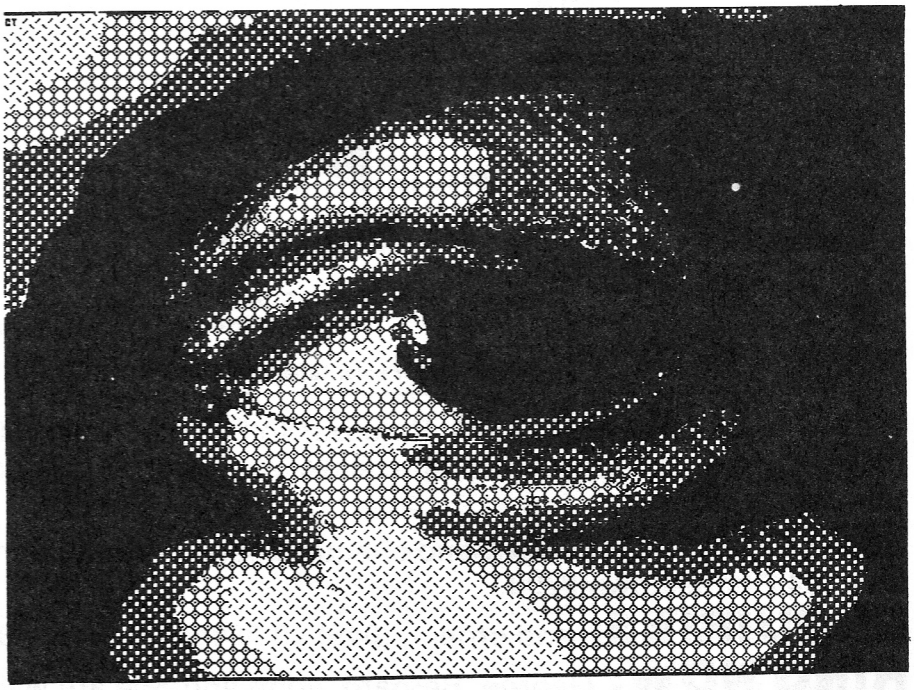
Considerably.

There will surely come a time – probably next year or early the year after – when Apple will standardise on a double sided double density 9 cm micro-floppy as the recording media for all of its machines. They may not cram one megabyte of memory on to it, preferring to go with with a slightly smaller memory but greater dependability.

Standardising on the 9 centimetre micro floppy seems the logical way for them to go. It will make the IIc into a far more portable machine and it will reduce the bulk of a IIe. It may even reduce the price. □

The Visible Computer: 6502

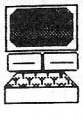
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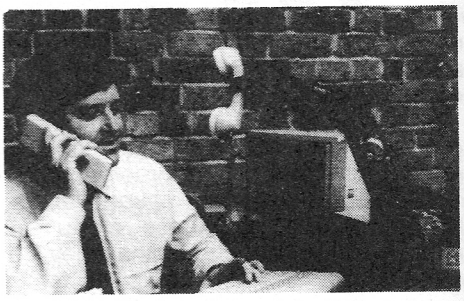
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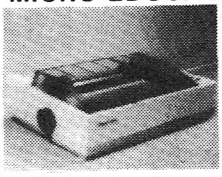
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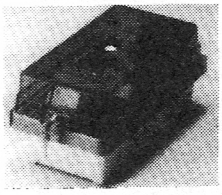
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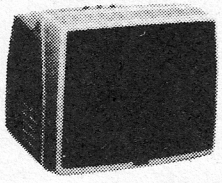
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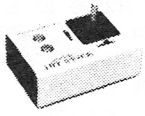


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The problem with power

No spikes, no noise, no nastiness

One of the major problems that hits buyers of fake Apples is the fact that the power system in Australia is rather different from the power system in the country in which the fake Apples are made.

Take Hong Kong as a good example. If the power there ever goes over 180 volts all the electrical engineers get together and have a party to bring the power down again.

The result is that the machines are designed to operate on that voltage. When they get to Australia and have a full 240 volts pumped in – even more in Western Australia – the capacitors fill up, there is a flash of blue, a cloud of dust and another power transformer has gone to the Happy Hunting Ground.

Brown outs

In the Philippines we used to suffer from brown outs and black outs at the most inconvenient times. In the end we solved the problem by using a battery charger connected to a car battery. From the car battery we extracted 12 volts direct current which we turned with an inverter into 240 volts alternating current.

This system worked after a fashion, but because the inverter produces a clipped, almost square, sine wave the computer can, on occasion, produce some very funny results indeed.

This is a pretty drastic solution, and it is unlikely that such a problem is going to arise in Australia, especially if you are using genuine machines designed for the job in hand.

But even the best electrical system can have "noise", can experience surges and other glitches. And these variations can affect the information you are putting in to your machine and you may not even be aware of it.

Built-in filters

Most modern computers have got input-noise filtering and noise suppression, and as a result most of the power-line noise is calmed down (the technical expression is "attenuated") enough to prevent the sort of logic errors to which we've referred.

However, you may have your computer installed in what is called a severe noise environment and then you can encounter some interference although, in fairness, most power sources have attenuators fitted which filter out most noise.

With the amount of electrical equipment being added to homes and offices, it's quite possible to have a power pollution environment depending on the age and power of the equipment.

There is some evidence to suggest that a high-powered radio transmitter could confuse a computer, but personally we've never found this to be so.

We have seen it reported as radio frequency interference coming from taxi cab radios, police, CB radios, broadcasting stations and even from neon or arc lights.

Welding set

Our closest experience to this was over twenty years ago with an Elliot 803, which refused to work properly because of a signal coming from a welding shop across the road.

Interference can also be generated by lightning during a storm.

The ideal situation would be to eliminate interference at the source. Unfortunately until you have a direct line to God, lightning is going to come whether you want it to or not, and it is almost impossible to stop people switching on and off air conditioners while you are working with your computer.

Most modern computers are well enough designed to handle these problems. However, if you find this is not enough, you will need to install some sort of noise attenuator onto your own machine. There are many of them available commercially and most of them work extremely well.

Spending money wisely

Noise isolation transformers, power line conditioners and line filters can reduce noise levels to a point where you will have no problem whatsoever. The trick is to get exactly the right mix so that you don't spend money where you don't need to.

A full blown noise isolation transformer is not unlike the system we used in the Philippines. Unfortunately they are expensive although extremely efficient.

Line conditioners work on a different basis and provide line voltage regulation and noise elimination through a series of filters at much less cost.

Power line filters are normally combined with a spike suppressor to provide a complete protection package.

To realise the sort of sudden surge or spike that you may have to suppress, take the case of a 10 horse power air conditioner motor. Suppose it is interrupted just as a current of 20 amps is flowing. Our mathematics – not our strongest point – suggests that this can create a momentary spike of about 2,000 volts. This will, of course, drop dramatically the further your computer is from the air conditioner. But at the very least such a spike can garble the information in your computer.

Cost effectiveness

The question is "Is the protection worth it?".

The answer is it that it depends on where you are working.

If you are operating from an environment where there is a lot of heavy electrical machinery and the power fluctuates as the machines are turned on and off, then there is no doubt you can best protect your investment by a form of power line noise attenuator and a spike suppressor.

They are not expensive, and if they save you the cost of replacing the complete power supply of your computer and a large quantity of rearranged chips, they may be one of the cheapest purchases you have ever made. □

Letters

Users' Groups

One thing I would like to see published in your magazine is a list of all the clubs throughout Australia and New Zealand. I think this is something a lot of Apple folk would appreciate. Here is one to start off with:

APPLE-Q: the Brisbane User's Group.
PO Box 721, South Brisbane,
Qld 4101.

Meetings are held on the third Sunday of each month at:
The Hooper Education Centre,
Kuran St, Wavell Heights,
Brisbane.

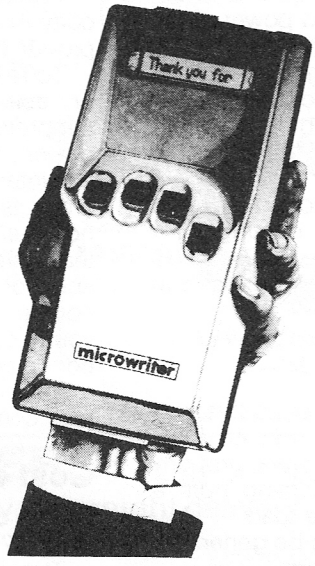
The centre opens at 9 am and closes at 4.30 pm (when the last person leaves). The meetings are in the form of an OPEN-DAY, where everyone brings their Apple along and does their own thing. Special Interest Groups are active. Membership Fees: Adults $18, Students $9. A magazine is produced each month, and the Trading Table has lots to offer the members. .

Graham P. Black

Ed: *We are happy to publish any information on Users' Groups – see the next letter.*

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New Mackay Users' Group

Dear Sir,

On 26th May 1984 the Mackay Apple Users Group was formed. The new club elected an executive comprising the following people:
President: John Nigel-brownlee
Vice President – Hardware: Rob Lucas
Vice President – Software: Anthony Young
Vice President – Special Applications (Games): Tony Travero
Secretary: Pam Diblasi.

The group can be contacted through my office.

J. Nigel-brownlee,
Nigel-brownlee & Associates
54 Gordon St, Mackay,
Qld 4740.

Apple imitation/ compatible computers

Dear Sir,

I am interested in purchasing a low priced computer system. The one that I am considering is the Apple compatible computer.

Could I have information on the following please:

* Firstly, in your article, October 1983 "The real truth about the fake Apple", it gave an unfavourable report on Apple compatible computers – I would like to know how the matter now stands.
* Secondly, is there a difference

between compatibles and imitation computers?
* Thirdly, if the compatibles are okay and the problems have been sorted out since you wrote the article
– will they accept all of Apple's software?
– which are the better quality/priced ones to buy?
– if I have one mailed from overseas, does X-raying at Customs damage the ROM?
– are the disk drives, screens, printers and extra cards worth buying from these dealers?
* Fourthly, if I buy an Apple computer new or secondhand, what are the things to look for, so that I do not purchase a lemon?
– are their prices going to fall dramatically?
* Finally is there an alternative low priced/quality computer to buy?

Arthur Siannos,
Queanbeyan.

Ed: *Quick reply coming up.*
1. Fake apples have got worse.
2. There is a difference between compatible and imitation computers, but the only compatible Apple computers that we know of currently available in Australia are the Cat and the MedFly.
3. The only machine that is truly Apple compatible is called an Apple.
4. If you have one mailed from overseas, Customs will not damage the ROM by X-raying it. They will damage your pocket by charging customs duty.
5. Disk drives and screens appear to be okay. All the extra cards that we have tested from foreign sources have been ratshit. (This is a word that has aroused the wrath of a managing director of a major company in Australia. We cannot see why. It's very precise.) Most cards are rip-offs, and not very good rip-offs at that. In 80 columns they're imitation Videx and the screen shimmers like mad.
6. I do not see how you can buy a lemon if you buy a real Apple computer.
7. I have no crystal ball to guess if their prices are going to fall dramatically – but I doubt it.
8. This is The Australian Apple Review. We are Apple fanatics. Would we recommend anything else? □

More entries in The Australian Apple Review program contest

Every issue we publish some entries in our Apple program competition (see Australian Apple Review Vol 1 No 4, April issue). Send us in an original program for the Apple computer, and you have a chance to win hardware to the value of $2,000 or software to the value of $1,000.

Here are three programs from Neil Francis of Cairns, together with his descriptions of them.

Program Entry Verifier

The problem with typing long BASIC programs from magazines is the difficulty in doing so with complete accuracy. One error is enough to bomb the program and finding that error can take hours. I'm sure that readers of your magazine would greatly appreciate a program which helps them check their entry accuracy and which will give them

```
62000  REM PROGRAMME ENTRY VERIFIER
62010  REM BY NEIL FRANCIS
62020  DIM A(39),B(39),A$(39),C$(39)
62030 D$ =  CHR$ (13) +  CHR$ (4)
62040  TEXT : HOME : PRINT "PROGRAMME ENTRY VERIFIER": PRINT
62050  PRINT "PLEASE WAIT....": PRINT
62060  RESTORE
62070  READ A$: IF A$ = "XXX" THEN 62090
62080 D = D +  VAL (A$): GOTO 62070
62090  FOR X = 0 TO 102: READ A: POKE 768 + X,A: NEXT : REM LOAD M/L PROG $300
62100 TA = 934: REM $3A6 START TOKEN TABLE
62110 CS = 727: REM $2D7 START COUNTERS
62120  POKE 975,40: REM $3CF LENGHT OF TOKEN TABLE
62130  FOR X = 0 TO 39: READ A$(X),A(X),B(X)
62140  POKE (TA + X),A(X): NEXT : REM STORE TABLE
62150  GOSUB 62400
62160  CALL 768: REM $300
62170  FOR X = 0 TO 39:C =  PEEK (CS + X)
62180 C = C - B(X) + 256 * (C < B(X)):S = S + C
62190 C$(X) =  STR$ (C): GOSUB 62370: NEXT
62200  GOSUB 62390
62210  REM NOW PRINT RESULTS
62220  PRINT "OUTPUT TO SCREEN OR PRINTER (S/P) ";: GET A$
62230  PRINT : VTAB 3
62240  IF A$ <  > "P" THEN 62260
62250  PRINT D$;"PR#1": PRINT
62260  FOR X = 0 TO 39 STEP 4
62270  FOR Y = 0 TO 3
62280  PRINT A$(X + Y);: PRINT C$(X + Y);
62290  NEXT : PRINT : NEXT
62300  PRINT : PRINT "SUM=";S;"    LINES=";
62310 L =  PEEK (26): PRINT L - 72 + 256 * (L < 72);
62320  PRINT "    DATA=";D
62330  PRINT D$;"PR#0"
62340  END
62350  IF  LEN (A$(X)) < Y THEN A$(X) = A$(X) + " ": GOTO 62350
62360  RETURN
62370  IF  LEN (C$(X)) < 5 THEN C$(X) = C$(X) + " ": GOTO 62370
62380  RETURN
62390  FOR X = 3 TO 39 STEP 4:C$(X) =  STR$ ( VAL (C$(X))): NEXT : RETURN
62400  FOR X = 0 TO 36 STEP 4:Y = 3: GOSUB 62350: NEXT
62410  FOR X = 1 TO 37 STEP 4:Y = 5: GOSUB 62350: NEXT
62420  FOR X = 2 TO 38 STEP 4:Y = 5: GOSUB 62350: NEXT
62430  FOR X = 3 TO 39 STEP 4:Y = 7: GOSUB 62350: NEXT
62440  RETURN
62450  REM
62460  REM
62500  DATA XXX
```

```
62510  DATA 165,103,133,6,165,104,133,7,32,87
62520  DATA 3,160,0,177,6,133,8,200,177,6
62530  DATA 133,9,200,200,200,177,6,240,39,201
62540  DATA 178,240,35,201,34,208,9,200,177,6
62550  DATA 240,26,201,34,208,247,133,27,174,207
62560  DATA 3,202,189,166,3,197,27,208,3,254
62570  DATA 215,2,224,0,208,241,240,212,165,8
62580  DATA 133,6,165,9,133,7,230,26,165,6
62590  DATA 208,185,165,7,208,181,96,169,0,133
62600  DATA 26,174,207,3,202,157,215,2,224,0
62610  DATA 208,248,96
62620  REM
62630  REM
62640  DATA <,209,5,OR,206,0,STEP,199,6,DATA,131,22
62650  DATA >,207,1,AND,205,0,NEXT,130,10,PRINT,186,16
62660  DATA =,208,27,NOT,198,0,PEEK,226,2,INPUT,132,0
62670  DATA ^,204,0,VAL,229,2,POKE,185,3,SCALE=,153,0
62680  DATA +,200,12,HGR,145,0,HGR2,144,0,LEFT$,232,0
62690  DATA -,201,2,GET,190,1,CHR$,231,2,RIGHT$,233,0
62700  DATA *,202,2,FOR,129,10,STR$,228,2,"LOMEM:",164,0
62710  DATA /,203,0,LEN,227,2,MID$,234,0,"HIMEM:",163,0
62720  DATA IF,173,4,THEN,196,4,CALL,140,1,GOSUB,176,7
62730  DATA TO,193,10,ROT=,152,0,GOTO,171,3,RETURN,177,4
```

```
<  0    OR   0    STEP 0    DATA   0
>  0    AND  0    NEXT 0    PRINT  0
=  0    NOT  0    PEEK 0    INPUT  0
^  0    VAL  0    POKE 0    SCALE= 0
+  0    HGR  0    HGR2 0    LEFT$  0
-  0    GET  0    CHR$ 0    RIGHT$ 0
*  0    FOR  0    STR$ 0    LOMEM: 0
/  0    LEN  0    MID$ 0    HIMEM: 0
IF 0    THEN 0    CALL 0    GOSUB  0
TO 0    ROT= 0    GOTO 0    RETURN 0

SUM=0     LINES=0     DATA=0
```



```
1000  REM CHECK PEV'S DATA STATEMENTS.
1010  REM BEFORE DELETING LINES 1000-1100
1020  REM DATA CHECKSUM OF 20428
1030  REM MUST BE OBTAINED.
1040  READ A$
1050  FOR X = 0 TO 102: READ A:S = S + A: NEXT
1060  FOR X = 0 TO 39: READ A$,A,B
1070 S = S + A + B: NEXT
1080  PRINT : PRINT "CHECKSUM=";S
1090  IF S <  > 20428 THEN  PRINT "WRONG....FIND ERROR."
1100  END
```

```
1  REM CAPTURE EXEC FILE PEV.EXEC
2 N$ = "PEV.EXEC"
3 D$ =  CHR$ (13) +  CHR$ (4)
4  PRINT D$;"OPEN";N$
5  PRINT D$;"WRITE";N$
6  POKE 33,33: LIST 62000,62999
7  PRINT D$;"CLOSE";N$
8  PRINT D$;"LOCK";N$
9  TEXT : END
```

confidence to type in a long program and get it to work.

PEV does this by counting 40 of the most commonly used BASIC statements in the program being typed. The hobbyist using PEV can check his totals against those published in the magazine and know if a statement or a line has been missed.

In addition, PEV counts the number of program lines and it sums all the numerical values in the program's DATA statements, giving a checksum for comparison with that published in the magazine. (Of course, the magazine publisher must have also run PEV to obtain the checksums for publication along with the program).

PEV doesn't check everything you have typed, but it will confirm the existence of the correct number of the most important statements and that puts the user way in front.

PEV is a BASIC program containing its own code to load a machine language program which does the bulk of the work at speed, and PEV can analyse a long BASIC program in 15 seconds or so. It is numbered from line 62000 so that it can be appended to the end of the program being verified.

A hard-copy of the checksum list can be obtained provided a printer is connected via Slot No 1.

User instructions

Type in PEV as listed and save it to disk. Do NOT try to run it yet. First also type in the short routine shown as lines 1000-1100 with PEV still in memory (lines 1000-1030 need not be entered as they are only REM statements). Now RUN and this routine will check your entry of the numerical values in PEV's own DATA statements. When this routine confirms that PEV's DATA statements are OK then delete lines 1000-1100. Now RUN and if PEV has been entered correctly, you will get a checksum list showing all zeroes.

To later use PEV, load it into memory, first then start typing in the program to be verified. (Save your entries to disk periodically if you're typing in a long program. The PEV lines will be saved also but that doesn't matter).

Creating an EXEC file version of PEV

The user may find it more convenient to be able to load PEV after typing the program to be verified instead of beforehand. To do this you need to create an EXEC file and a listing is included which will do this for you.

The listing (lines 1-19) should be entered along with PEV in memory. Now RUN and this routine will create a text file called "PEV.EXEC".

You then use this file by loading the program to be verified and then enter "EXEC.PEV.EXEC". PEV will be appended to the end of your program and to run it enter "RUN 62000". Don't forget to delete lines 62000-63000 after you've got your checksum list to agree with that published in the magazine and before you finally save the program to disk.

Paddle Tester

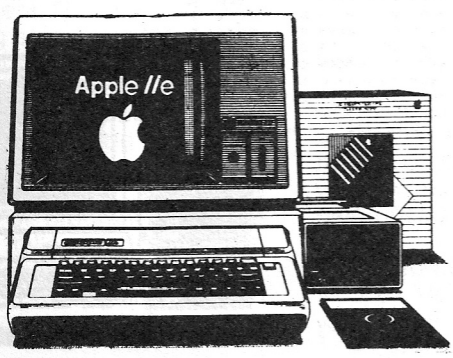
This is a little program which will show you how your paddles or joystick are performing. In particular, it is useful to see if your paddles are calibrated correctly, ie they return 0 at one extremity and 255 at the other. Most joysticks have adjustment controls and this program allows the user to set them correctly.

The PEV checksum list is included at the end of the listing.

```
100  REM "PADDLE TESTER" BY NEIL FRANCIS
110  REM THIS PROGRAMME TESTS PADDLES AND JOYSTICKS
120  REM AND THE TWO PUSH-BUTTON SWITCHES
130  TEXT : HOME : POKE 33,40: POKE  - 16368,0
140 S1$ = "                ": REM 11 SPACES
150 S2$ = S1$ + "     ": REM 5 SPACES
160  FOR X = 1 TO 5: PRINT S1$;: INVERSE
170  PRINT S2$: NORMAL : NEXT
180  INVERSE : VTAB 2: HTAB 17: PRINT "NEIL'S"
190  HTAB 17: PRINT "PADDLE": HTAB 17: PRINT "TESTER": NORMAL
200  VTAB 7: PRINT  SPC( 12);"HIT ESC TO END"
210  PRINT  SPC( 8);"ANY OTHER KEY TO PAUSE"
220  POKE 34,10: VTAB 11: HOME
230 X =  PDL (0):Y =  PDL (1)
240 S0 = ( PEEK ( - 16287) > 127)
250 S1 = ( PEEK ( - 16286) > 127)
260  PRINT "PDL0=";
270  IF X = 0 OR X = 255 THEN  INVERSE
280  PRINT X;: NORMAL
290  HTAB 12: PRINT "PDL1=";
300  IF Y = 0 OR Y = 255 THEN  INVERSE
310  PRINT Y;: NORMAL
320  HTAB 23: PRINT "SW0=";
330  IF S0 THEN  INVERSE
340  PRINT S0;: NORMAL
350  HTAB 32: PRINT "SW1=";
360  IF S1 THEN  INVERSE
370  PRINT S1: NORMAL
380 P =  PEEK ( - 16384): IF P < 127 THEN 230
390  POKE  - 16368,0
400  IF P = 155 THEN  POKE 34,0: HOME : PRINT "END": PRINT : END
410  PRINT "HIT ANY KEY TO CONTINUE ......";
420  GET A$: PRINT : GOTO 230
```

```
<  1    OR   2    STEP 0    DATA   0
>  2    AND  0    NEXT 1    PRINT  19
=  13   NOT  0    PEEK 3    INPUT  0
^  0    VAL  0    POKE 5    SCALE= 0
+  1    HGR  0    HGR2 0    LEFT$  0
-  5    GET  1    CHR$ 0    RIGHT$ 0
*  0    FOR  1    STR$ 0    LOMEM: 0
/  0    LEN  0    MID$ 0    HIMEM: 0
IF 6    THEN 6    CALL 0    GOSUB  0
TO 1    ROT= 0    GOTO 1    RETURN 0

SUM=68    LINES=33    DATA=0
```



Blast it

This is a fun dice game which is easier to play on the Apple than with real dice as the Apple takes care of the chore of keeping score. It's a game combining luck, nerve, and the ability to appreciate the odds involved in dice number combinations.

Thinking players will do better in the long run than intuitive ones, but the element of chance involved means that a five year old can compete against adults with chances of victory.

The game can be played by up to three players against each other and against the Apple computer. The Apple plays a conservative game and will rarely win against three human opponents, but gives a single opponent a good run for his/her money.

Instructions on how to play the game are included in the program listing.

Having developed "BLAST IT" over an 18 month period without benefit of a printer, I acknowledge that it could have been structured better, however I believe it to be bug-free (famous last words).

It is quite a large program for anyone to type, and I have tried to make the listing readable, however I've reduced my commenting to keep it as short as is probably reasonable.

The PEV checksum list is included at the end of the program.

```
100  REM *** BLAST IT ***
110  REM * A DICE GAME FOR UP TO 3 PLAYERS AGAINST THE APPLE COMPUTER
120  REM *
130  REM * START GAME
140  SPEED= 255: GOSUB 1950: GOSUB 1470: GOSUB 1720:TURN = 1
150  REM *
160  REM * NEW ROUND
170 X = 0:P1 = X
180  REM *
190  REM * NEXT PLAYER
200  SPEED= 255: IF X > PL AND T(1) = 6 THEN 570
210  IF X > PL THEN 170
220  IF X = APP THEN  GOSUB 840: GOTO 530
230  VTAB 15: HTAB 1: CALL  - 958: FOR XX = 1 TO 1500: NEXT
240  PRINT "YOUR TURN ";: INVERSE : PRINT PLAYER$(X): NORMAL
250 R3 = 0:R4 = 0:R5 = 0: GOTO 280
260  VTAB 17: HTAB 25: PRINT "          ";
270  HTAB 1: PRINT "YOUR LAST THROW TOTALLED   ";R5
280  VTAB 19: HTAB 18: PRINT "==>";: INVERSE : HTAB 22: PRINT " ";
290  HTAB 24: PRINT " ";: NORMAL : HTAB 23
300  PRINT "+";: HTAB 26: PRINT "=    "
310  VTAB 24: HTAB 1: CALL  - 868
320  VTAB 19: HTAB 1: PRINT "HERE'S THE ROLL ";
330  VTAB 21: HTAB 1: PRINT "PROGRESSIVE SCORE THIS TURN = ";R4
340  FOR XX = 1 TO 200: NEXT : GOSUB 1780:R1 = D
350  VTAB 19: HTAB 22: PRINT R1;
360  GOSUB 1780:R2 = D: HTAB 24: PRINT R2;:R3 = R1 + R2
370  FOR XX = 1 TO 600: NEXT : HTAB 28: PRINT R3;
380  VTAB 19: HTAB 18: PRINT "   ";
390  FOR XX = 1 TO 400: NEXT
400 R4 = R4 + R3: IF R3 <  > R5 THEN R5 = R3: GOTO 450
410 R4 = 0: FOR Y = 1 TO 5: PRINT  CHR$ (7);: NEXT : VTAB 21: HTAB 1
420  CALL  - 868: FLASH : PRINT "YOU BLEW IT SUCKER!!!": NORMAL
430  VTAB 24: HTAB 1: CALL  - 868: PRINT "HIT ANY KEY FOR NEXT PLAYER
440  POKE  - 16368,0: GET AN$: GOTO 530
450  VTAB 21: HTAB 1: PRINT "PROGRESSIVE SCORE THIS TURN = ";R4;
460 SC = R4 + S(X):DI = 1000: FOR XX = 0 TO PL: IF XX = X THEN 480
470  IF SC - S(XX) < DI THEN DI = SC - S(XX)
480  NEXT : HTAB 35: PRINT "(";DI;")  ";
490  VTAB 24: HTAB 1: PRINT "WILL YOU ROLL AGAIN ?  (Y/N) ";
500  POKE  - 16368,0: GET AN$
510  IF AN$ = "Y" THEN 260
520  IF AN$ <  > "N" THEN 500
530 S(X) = S(X) + R4:T(X) = T(X) + 1: GOSUB 1650:X = X + 1
540  FOR XX = 1 TO 20:Y =  PEEK ( - 16336): NEXT : GOTO 200
550  REM *
560  REM * END OF GAME
```

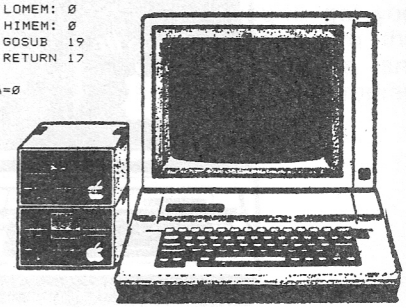
```
570  VTAB 15: HTAB 1: CALL  - 958: FOR X = 1 TO 5: PRINT  CHR$ (7);: NEXT
580  PRINT "THE WINNER OF THE GAME WAS":MAX = 0
590  FOR X = 0 TO PLAYERS: IF S(X) > MAX THEN W1 = X:MAX = S(X)
600  NEXT
610  REM *
620  REM * CHECK FOR TIE
630 W2 = 100: FOR X = 0 TO PLAYERS: IF X = W1 THEN 650
640  IF S(X) = MAX THEN W2 = X
650  NEXT
660  REM *
670  REM * DISPLAY WINNERS
680 PL$(AP) = "*** ME ***": VTAB 17: HTAB 9
690  INVERSE : PRINT " ";PL$(W1);" "
700  IF W2 = 100 THEN 720
710  VTAB 19: HTAB 13: PRINT " ";PL$(W2);" "
720  NORMAL : FOR X = 1 TO 3000: NEXT
730  VTAB 23: HTAB 3: PRINT "PLAY AGAIN (Y/N) ";
740  POKE  - 16368,0: GET AN$
750  IF AN$ = "Y" THEN  RUN
760  IF AN$ <  > "N" THEN 740
770  REM *
780  REM * END AND EXIT
790  POKE 33,40: SPEED= 255: HOME : PRINT "BYE BYE....": END
800  REM *
810  REM ************************************************************
820  REM *
830  REM * APPLES TURN
840  VTAB 15: HTAB 1: CALL  - 958: FOR XX = 1 TO 2000: NEXT
850  INVERSE : PRINT "MY TURN": NORMAL
860  GOSUB 1260: VTAB 20: HTAB 1: CALL  - 958
870 R3 = 0:R4 = 0:R5 = 0: GOTO 900
880  VTAB 17: HTAB 25: PRINT "      ";
890  HTAB 1: PRINT "MY LAST THROW TOTALLED      ";R5
900  VTAB 19: HTAB 18: PRINT "==>";: INVERSE : HTAB 22: PRINT " ";
910  HTAB 24: PRINT " ";: NORMAL : HTAB 23
920  PRINT "+";: HTAB 26: PRINT "=     ": VTAB 24: HTAB 1
930  CALL  - 868: VTAB 19: HTAB 1: PRINT "HERE'S THE ROLL";
940  VTAB 21: HTAB 1: PRINT "PROGRESSIVE SCORE THIS TURN = ";R4: GOSUB 1780
950  VTAB 19:R1 = D: HTAB 22: PRINT R1;: GOSUB 1780
960 R2 = D: HTAB 24: PRINT R2;
970 R3 = R1 + R2: HTAB 28: PRINT R3;
980 R4 = R4 + R3: VTAB 19: HTAB 18: PRINT "    ";
990  IF R3 <  > R5 THEN R5 = R3: GOTO 1030
1000 R4 = 0: FOR Y = 1 TO 5: PRINT  CHR$ (7);: NEXT : VTAB 21: HTAB 1
1010  CALL  - 958: FLASH : PRINT "BLAST IT !!!  #%&#()'+;@#";: NORMAL
1020  GOTO 1150
1030  VTAB 21: HTAB 1: PRINT "PROGRESSIVE SCORE THIS TURN = ";R4
1040  IF T(APP) = 5 THEN  GOSUB 1180: IF BEST THEN 1140
1050  IF R4 > M1 THEN 1080
1060  VTAB 24: HTAB 1: PRINT "I'LL ROLL AGAIN...";
1070  FOR XX = 1 TO 3000: NEXT : GOTO 880
1080  IF R3 = 6 OR R3 = 7 OR R3 = 8 THEN 1140
1090  IF R4 < M2 THEN 1060

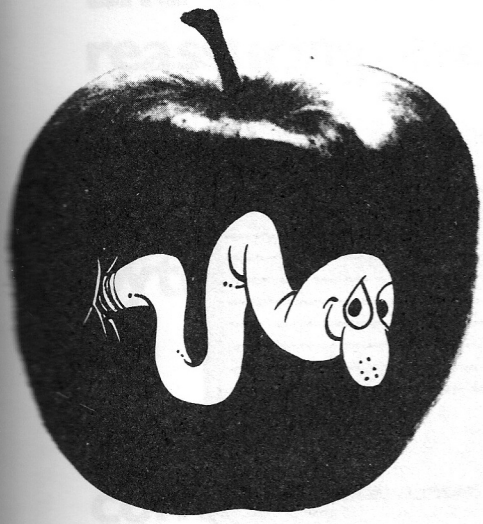
1100  IF R3 = 5 OR R3 = 9 THEN 1140
1110  IF R4 > M3 THEN 1140
1120  IF R3 = 4 OR R3 = 10 THEN 1140
1130  GOTO 1060
1140  PRINT  CHR$ (7);: VTAB 24: HTAB 1: PRINT "THAT WILL DO FOR ME....
1150  FOR XX = 1 TO 4000: NEXT : RETURN
1160  REM *
1170  REM * TEST APPLE ALREADY WON
1180 BEST = 1: FOR XX = 0 TO PL: IF XX = APP THEN 1200
1190  IF T(XX) <  > 6 THEN BEST = 0:XX = PL
1200  NEXT : IF  NOT BEST THEN  RETURN
1210  FOR XX = 0 TO PL: IF XX = APP THEN 1230
1220  IF S(XX) > S(APP) THEN BEST = 0:XX = PL
1230  NEXT : RETURN
1240  REM *
1250  REM * APPLE STRATEGY
1260 M1 = 1:M2 = 1:M3 = 1: FOR J = 0 TO PL: IF J = APP THEN 1410
1270 D = S(J) - S(AP):M7 = 0:M8 = 0:M9 = 0:
1280  IF S(AP) > S(J) THEN M7 = 20:M8 = 30:M9 = 40: GOTO 1380
1290  IF T(AP) <  > T(J) THEN 1420
1300 M7 = D + 20: IF M7 > 40 THEN M7 = 40
1310 M8 = M7 + 15:M9 = M8 + 15: IF M7 >  =  INT (D / 2) THEN 1330
1320 M7 =  INT (D / 2):M8 =  INT (D / 1.5):M9 = D + 10
1330  IF T(AP) <  > 5 THEN 1350
1340  IF M7 < D THEN M7 = D + 20:M8 = D + 25:M9 = D + 30: GOTO 1380
1350  IF M7 < 15 THEN M7 = 15
1360  IF M8 < 25 THEN M8 = 25
1370  IF M9 < 35 THEN M9 = 35
1380  IF M7 > M1 THEN M1 = M7
1390  IF M8 > M2 THEN M2 = M8
1400  IF M9 > M3 THEN M3 = M9
1410  NEXT : RETURN
1420  IF T(AP) = 5 THEN 1440
1430 M7 =  INT (D / 2):M8 =  INT (D / 1.5):M9 = D + 10: GOTO 1350
1440 M7 = D + 1:M8 = M7:M9 = M8: GOTO 1380
1450  REM *
1460  REM * SET PLAYER ORDER
1470  HOME : SPEED= 150: PRINT "PLAYERS GOING FIRST START WITH BONUS"
1480  PRINT "POINTS AS IT IS A BIG ADVANTAGE TO"
1490  PRINT "GO LAST.": PRINT : PRINT
1500  PRINT "LET'S SEE WHO WILL GO FIRST....": FOR X = 1 TO 100: NEXT
1510  GOSUB 1780:R =  INT ( RND (9) * (PLAYERS + 1))
1520  PRINT : PRINT "OK...HERE'S THE ORDER OF PLAY": PRINT :R1 = R:X = 0
1530  HTAB 6: PRINT TEMP$(R1):PL$(X) = TEMP$(R1)
1540  IF PL$(X) = "APPLE" THEN APPLE = X
1550 R1 = R1 + 1:X = X + 1: IF R1 > PL THEN R1 = 0
1560  IF X <  > PL + 1 THEN 1530
1570  SPEED= 255: VTAB 24: HTAB 1: PRINT "HIT ANY KEY TO CONTINUE ";
1580  FOR XX = 0 TO PL:S(XX) = 10 * (PL - XX + (XX < PL)):T(XX) = 0: NEXT
1590  GET AN$: GOSUB 1620: RETURN
1600  REM *
1610  REM * CLEAR SCREEN
1620  VTAB 15: HTAB 1: CALL  - 958: RETURN
1630  REM *
1640  REM * UPDATE SCORE
1650  VTAB 2: FOR C = 0 TO X: PRINT : PRINT ; NEXT
1660  HTAB 2: PRINT PLAYER$(X);: HTAB 23: PRINT T(X);
1670  HTAB 28: IF S(X) < 100 THEN  PRINT " ";
1680  IF S(X) < 10 THEN  PRINT " ";
1690  PRINT S(X): RETURN
1700  REM *
1710  REM * DISPLAY SCOREBOARD
1720  HOME : PRINT DASH$: PRINT "  *** BLAST IT ***  TURNS SCORE"
1730  PRINT DASH$: VTAB 2: FOR X = 1 TO (PLAYERS * 2 + 3): PRINT "!";
1740  HTAB 20: PRINT "!";: HTAB 26: PRINT "!";: HTAB 32: PRINT "!": NEXT
1750  PRINT DASH$: FOR X = 0 TO PLAYERS: GOSUB 1650: NEXT : RETURN
1760  REM *
1770  REM * DICE SOUND
1780  FOR XX = 1 TO 1000: NEXT : FOR XX = 1 TO 20:XY =  PEEK ( - 16336): NEXT
1790 D =  INT ( RND (8) * 6) + 1: FOR XX = 1 TO 100: NEXT : RETURN
1800  REM *
1810  REM * STRING INPUT
1820 AN$ = ""
1830  GET AA$:AA =  ASC (AA$):L =  LEN (AN$)
1840  IF L = 0 AND AA = 13 THEN 1830
1850  IF AA = 13 THEN  RETURN
1860  IF AA = 8 THEN  GOSUB 1890: GOTO 1830
1870  IF AA > 90 OR AA < 65 THEN 1830
1880 AN$ = AN$ + AA$:L =  LEN (AN$): PRINT AA$;: GOTO 1830
1890  REM BACKSPACE
1900  IF L = 0 THEN  RETURN
1910  PRINT AA$;" ";AA$;:L = L - 1: IF L = 0 THEN AN$ = "": RETURN
1920 AN$ =  LEFT$ (AN$,L): RETURN
1930  REM *
1940  REM * INITIALISE
1950  TEXT : FOR X = 0 TO 4:T(X) = 0:S(X) = 0: NEXT
1960 D$ =  CHR$ (13) +  CHR$ (4):DASH$ = "----------":
1970  GOSUB 2060
1980  GOSUB 2140: IF AN$ = "Y" THEN  GOSUB 2060
1990  VTAB 15: HTAB 1: PRINT "HOW MANY OPPONENTS HAVE I GOT ? (1-3) ";
2000  GET AN$:AN =  ASC (AN$) - 48: IF AN < 1 OR AN > 3 THEN 2000
2010  PRINT AN$:PLAYERS = AN:TEMP$(0) = "APPLE"
2020  FOR X = 1 TO PLAYERS: VTAB 20: HTAB 3
2030  PRINT "WHO IS OPPONENT #";X;" =>              ": VTAB 20: HTAB 25
2040  GOSUB 1820:TEMP$(X) = AN$: NEXT : RETURN
2050  REM LOGO
2060  HOME : INVERSE : FOR X = 3 TO 10: VTAB (X): HTAB 8
2070  PRINT "                    ": NEXT : REM 21 SPACES
2080  VTAB 5: HTAB 10: PRINT ">> BLAST IT !! <<"
2090  VTAB 8: HTAB 11: PRINT "BY NEIL FRANCIS": NORMAL
2100  VTAB 13: HTAB 8: PRINT "HI! MY NAME IS "; CHR$ (34);"APPLE"; CHR$ (34)
2110  RETURN
2120  REM *
2130  REM * INSTRUCTIONS

2140  VTAB 15: PRINT  SPC( 3);"DO YOU NEED INSTRUCTIONS (Y/N) ";
2150  POKE  - 16368,0: GET AN$
2160  IF AN$ = "N" THEN  RETURN
2170  IF AN$ <  > "Y" THEN 2150
2180  HOME : PRINT "INSTRUCTIONS FOR 'BLAST IT'"
2190  PRINT "==========================": PRINT
2200  PRINT "THIS IS A DICE GAME FOR UP TO"
2210  PRINT "THREE PLAYERS AGAINST EACH OTHER"
2220  PRINT "AND AGAINST THE APPLE COMPUTER.": PRINT
2230  PRINT "A GAME ENDS WHEN EACH PLAYER HAS"
2240  PRINT "COMPLETED 6 TURNS.": PRINT
2250  PRINT "IN EACH TURN, THE PLAYER MAY ROLL THE"
2260  PRINT "DICE AS MANY TIMES AS HE/SHE PLEASES"
2270  PRINT "TO BUILD UP A HIGH SCORE.": PRINT
2280  PRINT "THE TROUBLE IS THAT IF THE TOTAL OF A"
2290  PRINT "THROW EQUALS THE TOTAL OF THE PREVIOUS"
2300  PRINT "THROW, THEN YOU SCORE ZERO FOR THAT"
2310  PRINT "TURN AND PLAY PASSES TO THE NEXT PLAYER."
2320  PRINT "THEREFORE, YOU HAVE TO DECIDE AFTER"
2330  PRINT "EACH THROW IF YOU WILL RISK YOUR TURN"
2340  PRINT "SCORE BY THROWING AGAIN."
2350  VTAB 24: PRINT "HIT ANY KEY TO START ";: POKE  - 16368,0: GET AA$
2360  HOME : RETURN
```

```
]
<  20   OR   6    STEP 0    DATA   0
>  24   AND  2    NEXT 29   PRINT  105
=  158  NOT  1    PEEK 2    INPUT  0
^  0    VAL  0    POKE 6    SCALE= 0
+  26   HGR  0    HGR2 0    LEFT$  1
-  23   GET  8    CHR$ 8    RIGHT$ 0
*  4    FOR  29   STR$ 0    LOMEM: 0
/  5    LEN  2    MID$ 0    HIMEM: 0
IF 57   THEN 57   CALL 10   GOSUB  19
TO 29   ROT= 0    GOTO 16   RETURN 17

SUM=664     LINES=227     DATA=0
```





After I had crawled with embarrassing abasement in front of the management of Apple in Australia they let me borrow – not keep – ProDOS so that I could do an evaluation. Worms are not high on the gift list at the Ryde Stately Pleasure Dome.

I was able to return their munificent loan intact by buying a perfectly printed Taiwanese copy in Hong Kong for the sort of money that a travelling worm can just afford.

Not much interest in that, except that the shop that I bought it from, in the now infamous Golden Supermarket of Shamshuipo, had hanging outside its door a strange device. It was an exercise book on a piece of string with a pencil attached.

Being curious – worms are naturally curious – I inspected this strange volume and found out that it was a Police Reporting Book where members of Hong Kong's finest signed in as they did their rounds keeping law and order. A policeman reports to that very shop several times a day. And there, in front of his very eyes, are piles, mounds, heaps of illegally printed books.

Now it is not for this worm to criticise the Hong Kong government and its excellent Governor, who is currently being sold down the river to the Chinese government by Maggie Thatcher – a woman who postively detest worms – but one wonders whether the law in Hong Kong has any meaning at all.

We are not talking about the dubious area of program copyright here. We are talking about books. And convictions on breaking book copyright are proverbially easy to get.

Perhaps someone should speak to Sir Denys Roberts about this affront to the dignity of the law. Possibly the right people would be Gilmans, the new Apple distributor in Hong Kong. If they do, please don't mention my name.

Worms get easily crushed.

Whither Macintosh

I may now confess why I am against the mouse that dangles malevolently from the Macintosh. I once saw – shock, horror, shame, tremble – a mouse eat a fellow worm. Which is why I am happy to take sly shots at them at any time I can. And it is the reason why I prefer the Apple IIe and IIc over the Macintosh every time. And why I predict that although many universities and places of higher learning to which worms are not admitted will buy the Macintosh (and the auditors Peat, Marwick and Mitchell who bought 2,300) I think that in the end the IIc will vastly outsell it. We shall see. We shall see.

My American cousin worming his way around Comdex and other shows tells me that the Americans – ever a race prepared to mangle the language of Shakespeare and Milton – are referring to the plural of "mouse" as "mouses". I earnestly enquired of him whether this was not yet another monstrosity perpetrated by the all-encompassing and all powerful public relations firm Burson and Marsteller. Not so, he assures me. Even they would not stoop so low.

Then it must have come from Cupertino. Perhaps Ardsley-on-the-Hudson at the Ryde Stately Pleasure Dome could let us know.

If "backgrounder" arrives, can "mouses" be far behind?

Seasick worms

Sad but true. Worms do get seasick. So for this information I had to go to a distant branch of the family who is a sea slug. He tells me that yachts are putting to sea with Apples on board. I asked whether he was mistaking this for a fruit that was being used to resist the onslaught of scurvy.

Not so he assured me. Salt backs in their dozen are equipping their yachts with Apple computers which will tell them precisely why they have piled their costly contraption onto a reef. There's apparently an English company marketing a system which consists of an Apple //e complete with disk drives encased in a waterproof box and connected to a remote waterproof keyboard on the chart table. I again enquired whether it was used to play space invaders during the long passages of the middle watch. Not so.

What it does, I think, is measure the actual performance of the yacht against a computerised model of an ideal performance. At the same time it gives the navigator instant updates on his current positions and suggests the ideal tack to take and what allowance to make for the current. The computer takes in all the required information from the sort of electronic gadgetry with which yachts ard now besprinkled.

Whatever happened to the noon sight with the sextant? They'll be doing away with the rum ration next.

"Right me hearties, handsomely now. Heave away and IF we start gybing THEN let go the main genny. IF NOT THEN harden the sheets." Nelson must be turning in his grave.

New titles

This worm is quite sure that in Apple there is a department which is solely devoted for thinking up complex and obscurantist titles for everybody who works in the organisation. ("How many people work at Apple?" "About one in three". Old joke). A press release from Burson Marsteller tells us that various appointments have been made in the company which can be of no interest except to the people who have been given the jobs so we won't bore you with their names. But how would you like to be a "Market Development Specialist". Or how does "Operations Manager in Charge of Customer Support and Technical Support". Sounds as if the poor devil sells trusses. At least David Strong is called Managing Director. Now there is a title we can all understand.



The first Computer Of The Year that won't be out of date by next year.



The highly respected "Your Computer" magazine has just named the Apple Lisa® as Computer Of The Year, 1984.

In their own words, "People will remember 1983 as the year that Lisa revolutionised personal computing."

Surely good news for the business on the verge of choosing the ideal system.

In the frantic, fast-moving world of micro

technology, where new models are here today and gone this afternoon, Lisa seems to be a reassuring exception.

This is the most advanced personal computer in the world, with up to one million bytes of internal memory.

Unlike conventional computers, Lisa works visually, the way you do. Those complex computer commands are replaced with familiar symbols and a palm-sized mouse.

Countless man-hours are saved because Lisa starts being productive from the moment it's switched on. (Even for staff who've never used a computer before.)

Little technical miracles like these don't exactly happen overnight.

Considering they've taken us a good five years to perfect, even if our competitors simply copy, they should be kept busy for some time.

There are three Lisa models of varying price and capacity, any one of which your Apple dealer would be proud to demonstrate.

You probably won't be the only company moving to Lisa technology this year.

We expect quite a few of our competitors will be doing likewise.



Lisa. The personal computer for the office.

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Adventurer's Corner

with Ed Mehrtens

Adventure

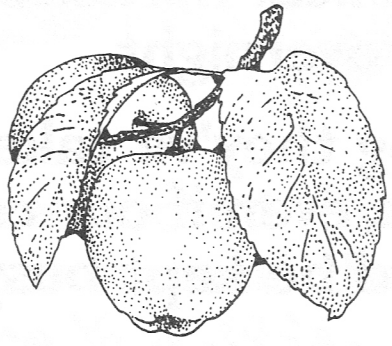
The original "Adventure" program was written in Fortran for the PDP-11 computer by Crowthers and Wood. It contained 130 rooms, 15 treasures, 40 useful objects and 12 obstacles. The descriptions in this version were very long and particularly witty, but it took 200K bytes on a 16 bit machine. Obviously to fit this program into the Apple took considerable editing; the descriptions were drastically edited but the original dimensions were kept.

There are five companies producing versions of Adventure for the Apple; Microsoft, Adventure International, Apple Computer, Programma and Rainbow. I would recommend Microsoft as being closest to the original, with Adventure International being the second choice. Both are written entirely in machine code with AI being entirely in memory and subsequently is further edited. All versions are in text, as was the original, but no adventurer should be without at least one copy of this classic game and adventure addicts will have more than one version, and savour the differences.

"Adventure" is a classic and I really recommend it as an extremely entertaining game. As with all games, map your progress as there are two difficult mazes.

Cryptic clues

1) Moving by magic is fast and easy.
2) Getting rid of the snake appears bird-brained.
3) Kung Fu or Karate deals with one monster.
4) The plants are saying something.
5) At the Troll Bridge (pay Troll) bear in mind that it doesn't have to be a treasure.
6) You were told it was delicate.
7) A hungry animal is an angry animal.
8) Some objects frighten some animals.
9) How are you going to carry it?
10) Not only dogs need to be on a leash.
11) Neptune would be able to open it.
12) 'Fee Fie Foo Foo"?
13) Was it "Twisty Little Maze".
14) Ordinary coins are hardly "Treasure".
15) Do you have the foggiest idea where the diamonds are located?
16) Rust is a normal problem.
17) Keys imply a lock.
18) How would a magician use a wand?
19) You can take it as read, that the final point (350) will drive you to your wits' end.
20) Getting more water is the pits.
21) Some objects can't be with others.
22) Of course there are secret passages.
23) Magic works in quite a few places.
24) If it is described as dark, compared with what?



Mystery Funhouse

This is the seventh adventure from Adventure International written by Scott Adams. All of the adventures are good, and the series is relatively easy at the start and gets progressively harder.

Mystery Funhouse is excellent for the more experienced adventurer, but would be frustrating for newer adventurers, who should try No 1 "Adventureland" first. Scott Adams writes well and as an added bonus he has a well developed sense of humour which provides his adventures with some unexpected quirks. The adventures show a series of puzzles which take time to unravel. Even an experienced adventurer is going to need quite a few sessions to complete this program.

Since this is Adventure No 7, it is to be expected that 007, James Bond, should be the principal character. You (James Bond) have until midnight to find the secret plans. Time is measured in moves so there is a definite limit, your watch measures "moves to midnight". Unlike the books though, Bond doesn't kill anyone.

Cryptic Clues

1) Why are you at the funhouse? Look at shoe heel.
2) Can't get in? Buy a ticket (look grate & inventory).
3) Keep getting thrown out? Read sign then inventory.
4) Stuck in a pit with a locked door? You can't unlock the door so try another method of getting up (synonym for swagman or hobo).
5) Some grates can be unscrewed while others can't; if it is too heavy to lift, slide it.
6) I wouldn't go into a room into which people were shooting.
7) There is normally a valve to turn off the steam in steam powered machinery.
8) Some people have to wear spectacles.
9) All young maidens like to look their best.
10) It is amazing what you can see in a mirror.
11) If something doesn't stop, you will be led on a merry chase and go round in circles.
12) Noisy people and vandals get thrown out, so shut the door if you don't want to be heard.
13) Storerooms and cupboard contain useful items.
14) The chewing gum is powerful stuff and sticky too.
15) Something out of reach ? Stick with it, branch into other concepts.
16) "Roll out the barrel, we'll have a barrel of fun".
17) "You have to climb, climb, climb to reach the top".

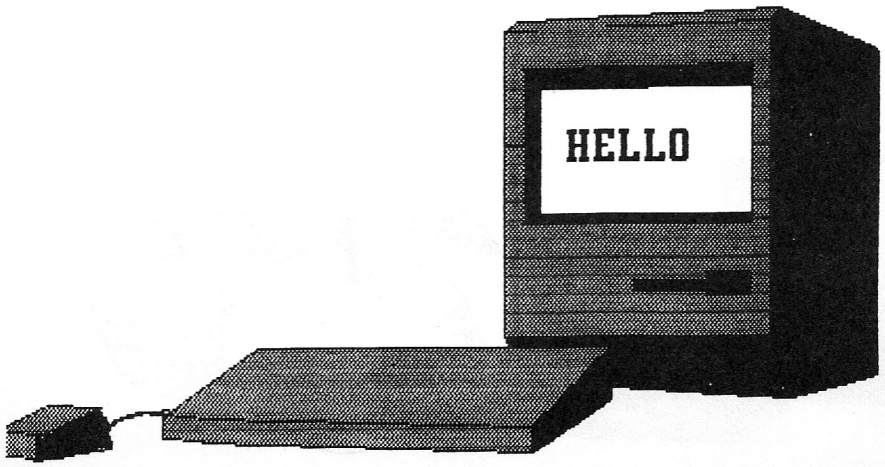
A USER'S VIEW OF MACINTOSH

BARRY KAULER, A COLLEGE LECTURER, REFLECTS ON HIS REASONS FOR BUYING MAC.....

Let me say right from the start that it was love on the first date: that is, when I walked into the Apple shop and played on the "desktop", although truly the affair did have its origins a month or so before. Herein I have (in retrospect) tried to compose a rationale for parting with a few thousand dollars.....

Imagine a desk in an office,with filing cabinets beside the desk, a trashcan, and in the desk drawers a notepad, scrapbook, calculator, clock, etc. You already know how to use all of these: get a folder from the cabinet, open it up on your desk, add another document to it, write the date on the document, get out the calculator for a quick sum, scribble a name and phone number into the notepad, etc, etc.

Mac is the electronic equivalent of all this, plus a whole lot more. But if you've already got a desk, filing cabinet, trashcan, etc, what do you need with a funny-looking little box that simulates it all?
The justification is many faceted, but basically Mac should increase your productivity, that is, your cost-effectiveness, and as a byproduct should tidy-up your desk and filing.
Since I fancy myself to be a "big cheese", whose every second is money, I convinced myself that it is vital to have a microcomputer on my desk.
Besides, it looks sexy sitting there.....



Now what's the point of making a microcomputer think it's a desktop? It does this (with great difficulty) because desktops, folders, trashcans, etc, are what we are familiar with and know how to handle. Mac's microfloppy disks are the filing cabinets: to make use of them select the one containing the appropriate information, plug it in, and a little picture (icon) of the disk will appear on the right hand side of the sceen. That's your currently active filing cabinet. A simple standardized mouse movement will pull all of the "manilla" folders out of the filing cabinet and spread them on your desk (which is the bulk of the screen).

Now one of the folders can be opened up, and the documents therein spread out on the table. Then a particular document can be selected, or a new document created and put into the folder. Various applications programs can be run, for example, **Macwrite** to write letters and reports, **Macpaint** to create custom letterheads, etc, **Multiplan** to create spreadsheets, **Chart** for pie diagrams, etc, **File** for a database, **Macdraw** for professional drawing, **Macterminal** to talk with a mainframe computer, and so on.

.....This could take me pages to explain, which a short demonstration could easily convey, so I'll terminate the explanation at this point, and leave it up to you to read earlier reviews for descriptions of operating procedures, etc, but also do make sure that you go to your local Apple shop and ask for a demo. Sit down with Mac for at least half an hour, and in particular make sure that the salesperson demonstrates the desktop simulation, as I started to explain above, including the desk accessories (calculator, notepad, etc), pull-down menus and windows.

Then ask for a demo of whatever application software takes your fancy. You'll find Macwrite and Macpaint are good starting points, and are very impressive products. In fact you may become quite excited.....

My purpose in writing this article was not to give a detailed description of how to use Mac, or of Mac's desktop, windows, mouse and icon concepts, which earlier reviews have done adequately, but instead to analyze what really matters.....

I'm thinking of poor Mr or Ms Businessperson/educator/whatever, having yet another micro to choose from. For the last year or two I've been a champion of standardization, telling everyone that they should buy an IBM-PC compatible. Not an actual IBM-PC mind you, since I don't want IBM to become the sole world-wide vendor and besides I've developed a bad case of IBM-phobia. Going with a major standard brings many advantages. Having established myself as an IBM-PC proponent, I didn't want to know about the Macintosh when early reviews started to appear in the popular journals. But after reading a couple of those reviews I was becoming worried. You see, at the time I had been thinking that micro's needed desperately to improve in two main ways:

***Easier to use by computer-illiterate people**

***Incorporate very low-cost local area networking**

Mac addresses both of these problem areas and has some neat solutions. All of a sudden I began to get very excited about Mac, and read everything I could find.....

What I have done is summarized all of Mac's features that make it of interest. I initially performed this exercise because I wanted to clarify in my own mind my reasons for deciding to purchase Mac.

Now others can take this same list and use it as a basis of comparison with other microcomputers. Do as I did: for each of the items in the list, check against whatever other microcomputers you are considering for purchase. You might be quite surprised.

ITEM#	MACINTOSH COMMENTS

1 **Only one in-built disk drive:**

This is a major criticism. It has 400Kbyte capacity, and with only 128K RAM, results in excessive disk swapping, for example when copying disks.
However RAM can be expanded to 512K which will, I optimistically hope, make the single drive quite acceptable, and also will speed up swapping between applications. Therefore I recommend minimum configuration to have 256K-512K RAM.

2 **Local area networking:**

This is one area in which I have been very dissatisfied, as add-on products for networking tend to be rather expensive, typically around the $1500 (Australia) mark per micro. I could see that the efficient modern office of the future must have micro's with this feature, at very low additional cost, so I was very intrigued to learn that Mac has local area networking capability built-in, at 230Kbit/sec. Gateways will soon be available to other networks. See Figure 1 below:

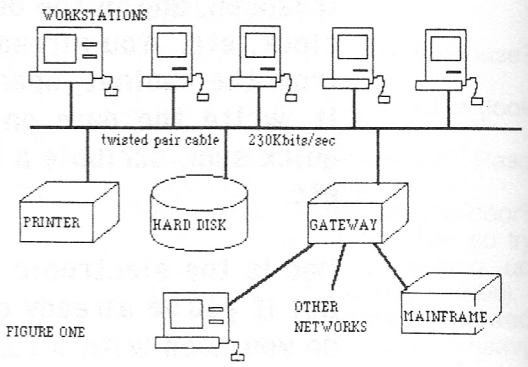
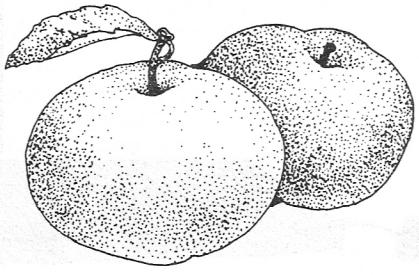


FIGURE ONE

3 **User interface:**

This is the interaction between user and computer, that is especially designed on the Mac to be very easy, quick and intuitive. This area is what really sold me on the Mac, and now after having had my own Mac for sometime I would be very loath to go back to conventional operating systems. So far I haven't encountered anything I wanted to do but can't, and all of the operations are so simple and obvious, to the extent that I rarely need to look at the manual. It is necessary to divide this section into a number of classifications to be considered separately:-



3(a) Desktop simulation:

All concepts stem from familiar office desktop facilities, so that a computer-illiterate person can rapidly get going using already-understood intuitive concepts. No DOS commands or cryptic keyboard sequences necessary to use this system. Software protects user from doing anything silly i.e. Menu options cannot be selected when not appropriate for current situation. I found the file handling in the form of folders and documents to be a dream to use.

3(b) Standardized operating procedure:

Mac has standardized operating procedures for all application programs. It is easy to come back and use a program after some time without having to make frequent references to the manual to refresh one's memory.
Lotus 1-2-3 is an extremely popular software package that incorporates spreadsheet, database, wordprocessing and graphics, though it does not do each task as well as single-purpose programs. Its popularity stems from the consistent environment within Lotus 1-2-3. However Mac overcomes many of the limitations of separate programs, and although IBM-PC users may have found Lotus 1-2-3 to be a haven, away from various nasty realities, with Mac it is an entirely different story and I'm lead to contemplate whether users are better off selecting good single-purpose packages. However some of the new integrated packages just coming onto the market, such as Symphony, may be a different matter. If you do want to use Lotus 1-2-3, it is available on Mac, and I expect Symphony will be also.

3(c) Standardized data formats:

To allow transfer between all application programs. For example, some artwork created by Macpaint could be inserted into a report being typed by Macwrite. This is important, and not very well catered for in other computer systems, in which different software houses don't have compatible data standards. Also note comments in 3(b) above. Of course integrated packages such as Lotus 1-2-3 overcome this problem.

3(d) Icons:

An icon is an image that represents some real thing, such as a trashcan. The mind works internally with images anyway, so it's very easy to remember what an icon stands for. This makes it easier to use the software.

3(e) Mouse:

Much easier to use than keyboard control. In particular I found the file handling with the mouse a dream to use, and also the graphics-oriented software, such as Macpaint. I find it much faster than conventional techniques. One other competitor is the touch sensitive screen on the Hewlett Packard 150, but I think that holding up one's arm is tiring and awkward, but more importantly, and this is very important, the finger is not as accurate as a mouse pointer..... the finger would be useless for many of the applications the mouse is put to.
I recently read a short article in the computer section of a national newspaper that hit out quite vehemently at Mac's mouse, which lead me to conjecture about the behind-the-scenes maneuvering of the big companies and possible influence on what we read. My own independent assessment is that the mouse is great, however I will qualify that statement by pointing out that for single purpose tasks such as typing, the typist should not have to remove her fingers from the keyboard **while** typing, and in fact many programs do have keyboard commands as an alternative to the mouse. Certainly the typist could start off very quickly by using the mouse heavily and then gradually pick up the keyboard commands. The commands are shown on the pull-down menus, so the transition would occur quite naturally. However I emphasize that for the executive who will use many different programs, some less frequently, and some highly graphics oriented, the mouse is a very efficient tool. Anyone who has had lots of hands-on with Mac's mouse will agree with me.

4 Terminal emulation:

VT100, 3278, etc available, which is important for the user, to allow communication with mainframes and other remote micros. Requires an external modem.

5 Maintenance:

Very low-cost same-day carry-in service: annual charge about 4% of purchase price (Australia). Mac has a very low chip count, which is expected to make it very reliable: the digital board has only 49 chips, compared to about 5 times that number for a similarly-configured IBM-PC.

6 Micro-floppies:

3.5inch hard-shell micro-floppy disks are protected from greasy fingers and ingress of dirt, which enhances reliability considerably. Also it is not necessary to be so careful when handling them. They fit easily into a shirt pocket, which is very convenient. The drives have automatic disk ejection, to cue the user when to change disks, also prevents user from trying to pull out disk at inopportune moment.

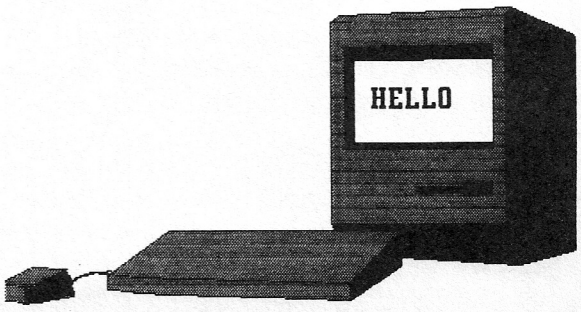
7 Software range:

This has been an area of criticism, as it is a completely new machine. But software houses are getting solidly behind it, including Microsoft and Lotus Corp, and an excellent selection is emerging. Note in particular that Apple and Microsoft software for Mac is extremely attractively priced. For some of the offerings see Figure 2:

PERIPHERAL	DESCRIPTION	AVAILABLE
Mass storage	External microfloppy (apple)	now
	Hard disk (Davong)Cartridge hard disk (Tecmar)	now
	Tape backup (Davong),Disk emulation (Microtek)	now
Networking	Applebus (Apple),Appleline (Apple)	now
	Multilink (Davong)	now
Scientific	IEEE488 interface (Tecmar)	now
Printer	Printer buffer (Tecm.)Printer buffer (Microtek)	now
Expansion	Memory RAM (Microtek),Expan. chassis (Tecm.)	now
SOFTWARE		
Wordprocessing	Macwrite (Apple), Megawrite (Megahaus)	now
	Word (Microsoft), Memoplan (Chang Labs)	now
Spreadsheet	Multiplan (Microsoft), Lotus 1-2-3 (LotusCorp)	now
Graphics	Macpaint (Apple), Chart (Microsoft)	now
	3-D Graphics (MECC)	now
	Macdraw (Apple)	soon
Database	Fileplan(Chang Labs), File (Microsoft)	now
	dBasell (Ashton Tate), Friday! (Ashton Tate)	soon
	pfs:File (S/W Publishing)	now
Project scheduling	Macproject (Apple)	soon
Communications	Macterminal (Apple), Datatalker (Winterhalter)	now
	3270/3770 Comm. (Persyst)	now
Accounting	Accounting (BPI), Client Mgmt Sys. (Compulaw)	now
	SmallBus. Acc. (Continental), Pers. Fin.(Micros)	now
Languages	Macbasic (Apple), C (Apple)	soon
	Macpascal (Apple), Assembler 68000 (Apple)	now
	FORTH (Creative Solutions), Maclogo (Apple)	now
	Modula-2 (Volition Systems)	now
Productivity tools	Macmanager (Harvard Assoc.)	now
	Typing Tutor (Sir Tech), Training (ATI)	now
	Mactutor (Dilithium)	soon
	SalesEdge, ManagementEdge, NegotEdge(HumanE)	now

FIGURE TWO

Note: Some of the above software listed as now available, may not be, as this table was compiled from software suppliers promised delivery times. I have recently heard that some are falling behind schedule.



8 **Multitasking:**

This capability, although not currently available on most microcomputers, is up and coming and is certainly very nice to have. Mac's multitasking is limited, allowing the desk accessories to run on top of the current application, which is a step in the right direction. Even so, proper multitasking and concurrency is so useful that I wonder what lies in store for us: as Mac with expanded RAM becomes readily available I'm sure that the operating system will be similarly enhanced.

9 **Speed:**

4-7 times faster than the IBM-PC. About 10 times faster than PCjr.

10 **Transportable:**

With its optional padded waterproof carry-bag, Mac can be classified as portable. Definitely a plus factor for many users. I have found the carry-bag to be very useful, but with a price tag of $137 (Australia) many buyers will be put off.

11 **Construction:**

Well-built sturdy construction, and well-ventilated which is a failing in some machines. In fact no fan is required which is wonderful: you can leave it running on your desk without any infernal noise. Occupies a very small desktop area and also has excellent keyboard feel, though the keys are too noisy for my liking.

12 **Graphics:**

Superb high-resolution, high-speed, monochrome, bit-mapped graphics, coupled with excellent software, allows rapid creation of graphs and drawings for inclusion in reports, etc. Readily usable for professional autodrafting, though the bit-density could be somewhat higher, when someone develops the software, which I'm sure will happen. I had a play with Macdraw, and it is very impressive, though not quite a full auto-CAD program: though the version I looked at was an early pre-release, and I can't say what features the final product will have. The screen displays square pixels (dots) which means that printout will have the same vertical and horizontal proportions as the screen, without having to apply correction factors. With the flexibility to display any shading and pattern between black and white, I see no need for colour: in fact in most situations, reports etc will be photocopied anyway, so what is the point of colour? No such thing as text-mode display: Mac is always in graphics-mode, thus allowing virtually any font, style or size of text. You would need to pay 2-3 times as much for another micro that would match Mac's graphics.

13 **Clock:**

Real-time battery-backed clock built-in, that gives the time and date. Not just an add-on as with many other systems, but integrated into the filing software. I consider this feature to be a necessity for serious business work.

14 **Some filing niceties:**

I'll just mention here a few niceties that struck me as particularly convenient. One nice touch is date-stamped files. Also being able to have long file names is certainly an improvement on earlier DOS systems. I liked the hierarchical (tree) structure of filing, which I have now come to see as a necessity for efficient file handling: again this is a feature that earlier systems don't have. The windowing makes it extra nice. Also I liked the automatic invocation of the host program, such as Macwrite when a report is taken from the filing cabinet and opened on the desk.

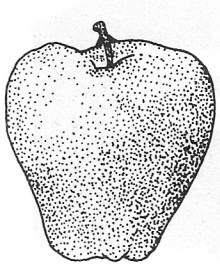
15 **Voice synthesis:**

Yes Mac actually talks! it's a built-in feature but at the time of writing there's no software to drive it.

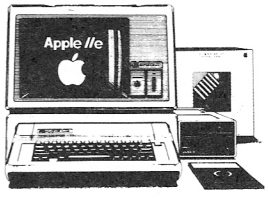
16 **Price:**

Last but certainly not least. Mac costs $3000 plus tax (Australia), including Macwrite and Macpaint, with a substantial discount for the educational institutions ($3200 including Imagewriter printer). For comparison with another microcomputer, option it up to Mac's configuration. Thus the other micro should consist of:-
(a) High density monochrome graphics (Mac has 512 by 347)
(b) Local area networking (Mac has 230Kbit/sec)
(c) 128K RAM, expandable
(d) Voice synthesis
(e) Mouse
(f) One disk drive, approximately 400Kbytes
(g) Battery-backed clock
(h) 2 serial ports
(i) Mouse/window operating software
Even then the optioned-up micro will not be as totally hardware and software integrated as Mac, unless you find a micro that has been designed from the ground-up with most of these features.
VisiOn, by VisiCorp, is an operating system that brings Mac-like features to the IBM-PC, but at what cost! The VisiOn operating system requires 1.5Mbyte, apart from applications programs, and a minimum hardware configuration would include 512Kbyte RAM, 5Mbyte hard disk, graphics card and optical mouse. Despite this extremely expensive hardware investment, it is significantly inferior in performance to Mac, not having the same screen resolution (which is important for this kind of system) and being very slow. Also it is not likely to have the same third party software support as Mac. Give VisiOn a big miss. The simple fact is that the 8088-based IBM-PC cannot be cost-effectively upgraded to a truly Mac-like environment.

I think that all of the above speaks for itself. Certainly the CP/M and MSDOS machines have a much wider software base, and this is a major reason for staying with them. However an expanding range of software is emerging for Mac, and there are expected to be as many as 500 software packages available by the end of 1984, which is quite satisfactory. 128K of RAM isn't much on a system of this nature, so do heed my advice to add more. It's likely that some of the software yet to come on the market will need more than 128K. The proof of the pudding is in the eating, and in this case you've got to get the hands-on to fully appreciate Mac: page after page of explanation won't convey how **simple** Mac is to use, and how much **fun** he is..... the cassette-disk tutorials supplied for Mac operation and Macwrite/paint had me up and running in a jiffy, and I rarely look at the manuals. Now, thank goodness, I don't have to send work to my College typists.... I just type it all straight in, though I would prefer a truly letter-quality printer rather than the Imagewriter. The Imagewriter performs very well though for a dot-matrix type. Have a good look at this article, and the diagrams. I did all of this with Macwrite and Macpaint, and have produced something professional enough to be directly printed in a journal. Macwrite does have some limitations, but it sure is easy to use! In the very near future I'm planning to try out Microsoft's Word, which looks like one of the best wordprocessors around. Anyway, I'll terminate this article at this point, though I'm reluctant to tear myself away from my Mac! I hope that like myself, you will study the above comments, and will start seriously considering possible new directions in your personal computing.....



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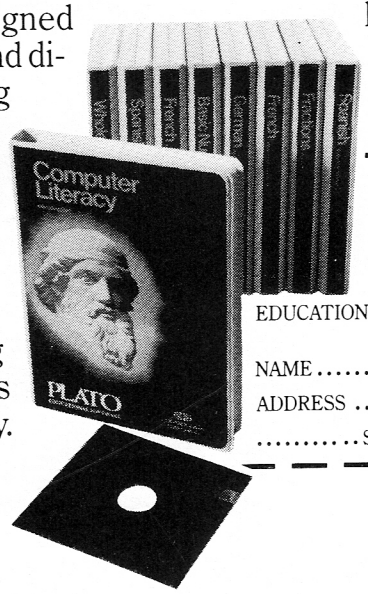
Control Data PLATO computer-based education, recognised as a world leader in educational software, is a highly interactive system of self-paced, one-to-one instruction. Developed over 20 years, it has been thoroughly tested and proven in business, industry, and the academic community. PLATO lessons are designed and programmed to motivate and direct students as well as helping them develop a sense of accomplishment and personal progress.

For example, the course titled Computer Literacy provides the foundation for simple programming as well as giving a brief introduction to the uses of computers in today's society. There are lessons in building vocabulary in French, German and Spanish as well as lessons in Physics, Fractions, Decimals and Basic Number Facts.

Today, more than ever before, all members of society need to learn. PLATO computer-based education is designed and paced for the individual. This means easier learning with infinite patience and personalization.

As traditional education methods become progressively more costly and less efficient you owe it to yourself to bring the power of PLATO learning to your Apple.

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